FOUNDED IN 1856

RAILWAY AGE

In this issue — The Railroad Fair at Chicago

JULY 24, 1948

BASIS FOR LEADERSHIP

Leadership rests upon the ability to foresee, to develop, and to achieve — first.

On that critical basis, weigh the position of the General Motors Diesel locomotive.

It was pioneered by General Motors in 1934 and powered the first modern, high-speed, Diesel-driven passenger train — the famous Burlington Zephyr.

It has been continuously developed into the magnificent piece of motive power today preferred by railroads of America for the fastest, hardest jobs in both passenger and freight service.

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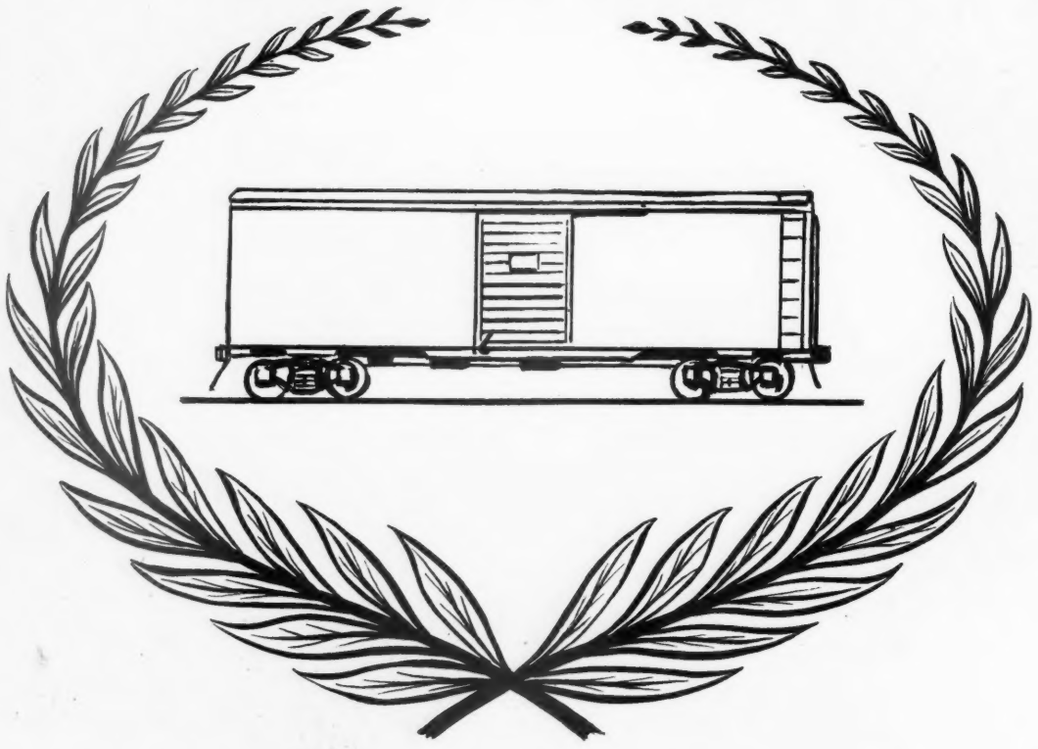
ELECTRO-MOTIVE DIVISION
GENERAL MOTORS LA GRANGE, ILL.
Home of the Diesel Locomotive

GENERAL MOTORS LOCOMOTIVES

You are cordially invited to visit the Electro-Motive exhibit at the Chicago Railroad Fair



THE 100,000th UNIT FREIGHT CAR IS AT THE CHICAGO RAILROAD FAIR

BUILT BY THE BURLINGTON — THIS ULTRA-MODERN FREIGHT CAR WILL BE PROUDLY SHOWN BY UNIT TRUCK CORPORATION FOR THE DURATION OF THE FAIR AS A TRIBUTE TO THE AMERICAN RAILROADS.

Vol. 125, No. 4 July 24, 1948

RAILWAY AGE

With which are incorporated the Railway Review, the Railway Gazette, and the Railway-Age Gazette. Name Registered in U. S. Patent Office.

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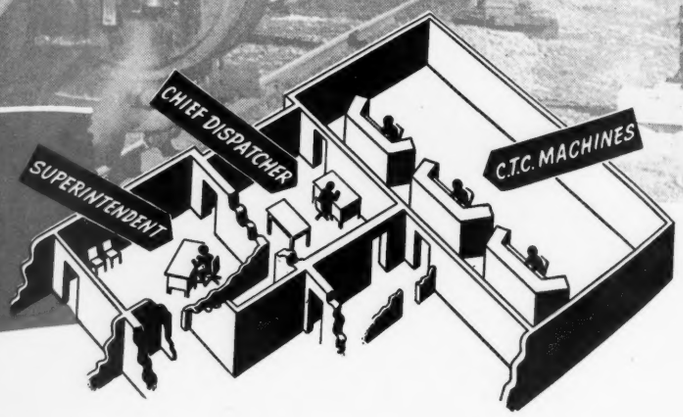
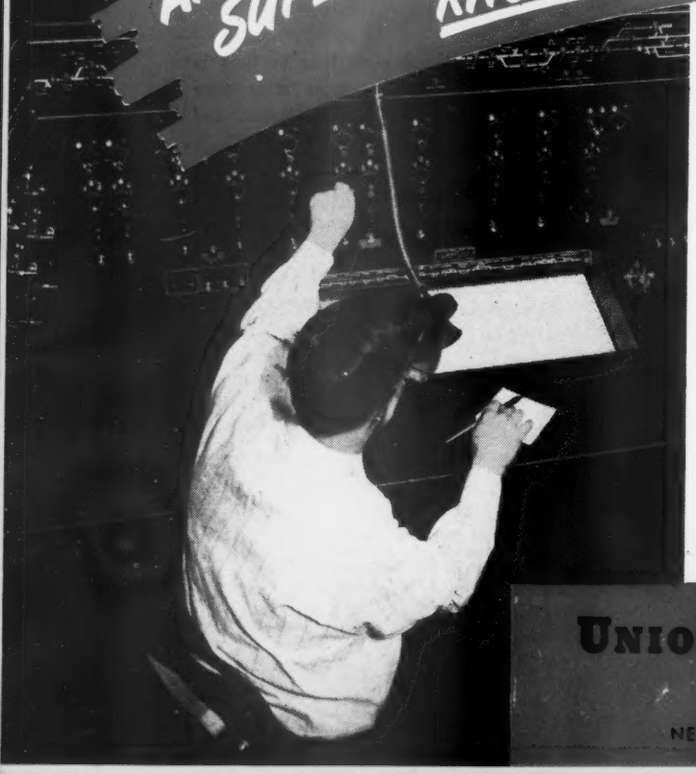
SUPERINTENDENTS SAY: *

"This committee . . . acclaimed it (C.T.C.) for the part it is playing in increased efficiency and reduced possibility of error. The committee considered that, as a rough generality, a single-track C.T.C. operation has about 75 per cent the efficiency of double track, and that unless the double track without C.T.C. is provided with an adequate number of sidings, the single track with C.T.C. actually is preferable. The report states that C.T.C. installation can usually be justified economically on a single-track line handling 20 or more trains per day, and that a modified C.T.C. installation can be justified where there are even fewer movements. The committee's findings are that, generally at least one-third of the sidings used for passing or meeting purposes can be eliminated by a C.T.C. installation."

**Quoted from a report by the C.T.C. committee of American Association of Railroad Superintendents. Railway Age, June 19, 1948.*



AND MANY SUPERINTENDENTS KNOW:



. . . from their experience with "Union" C.T.C., that the greatest benefits of this modern method of train operation are obtained when *control is concentrated at division headquarters*—where the personnel can best utilize their overall knowledge of division operations to direct train movements swiftly and easily by signal indication.

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NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

WEEK AT A GLANCE

RAILROADS' PROGRESS SHOW: This week marked the opening of the Railroad Fair on Chicago's lake front, which is to continue into the fall. Most of the illustrated pages in this issue are devoted to a description of its attractions —including the varied and entertaining exhibits of 23 railroads and of representative producers and purveyors of equipment and materials that contribute to the railroads' performance—and to a resumé of technical developments in the art of railroading during the century of progress marked by this fair.

SUPPLIERS THERE, TOO: The article on page 84 reviews the contributions of participating supply and equipment manufacturers to the presentation of the story the railroads are telling. Color and action again dominate the displays, which range from locomotives and cars, headlights and trucks, through a variety of mechanical and electrical appliances that will impress upon the visitor the scope and thoroughness of the technical and engineering research that have gone into making the serviceable, safe and luxurious railroad equipment he has come to take for granted.

PLANNED TO PLEASE: The fair is not a propaganda performance—except that people who have been pleasantly entertained, or unobtrusively educated, perchance, are inclined to feel kindly toward the source of their satisfaction. The participating railroads have taxed the resources of the technicians and artists whose business is to put color and motion and light and "atmosphere" to work to recreate the past and dramatize the present. This is a "big time" exhibit, said to be the most elaborate ever presented by a single industry at its own expense. It includes the largest collection of ancient and modern railroad equipment ever assembled for such a purpose. An actual narrow-gage railroad is in operation to transport visitors the length of the grounds. A pageant that lasts over an hour tells the history of transportation and the part played by the railroads in bringing civilization to the "great American desert."

"WHEELS A-ROLLING": The railroads' pageant comes to an end as modern steam and Diesel-electric locomotives approach each other from opposite ends of the stage. These typify the many varieties of equipment that are on the fairgrounds for visitors to look over at their leisure. There are freight cars of all types, Diesels large and small, steam power such as the Pennsylvania's 4-4-4-4 and the Union Pacific's "Big Boy" and the C. & O.'s turbine-electric, and colorful new passenger cars sampling trains in service in all parts of the country. The exhibits of the participating roads are described in one of our articles.

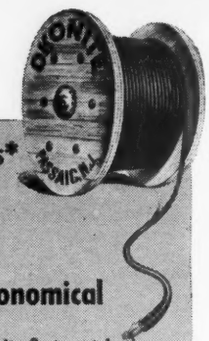
NOT A SECTIONAL FAIR: What railroad service and railroad facilities were like a hundred years ago the visitor to the fair will be reminded by some of the exhibits, particularly those of the Chicago & North Western, which road's predecessor entered Chicago a century ago, thus in effect pioneering the extension of railroads into the West. As our editorial discussion of the fair points out, this western flavor is enhanced by many of the exhibits—for example, those of the Santa Fe, the Burlington, and the Union Pacific—in which western scenes and settings, western ways of living and of enjoying life, are illustrated and illuminated. But the West does not monopolize the fair. The eastern railroads are represented, too, and the South is brought to Lake Michigan by roads that connect Chicago with that section.

JUNE GROSS UP: This year June operating revenues were 17.6 per cent better than in 1947, the A.A.R. estimates. Data in the news pages show the increase was largely from freight business, as passenger revenues dropped slightly.

"NO EVIDENCE": Just because Department of Justice lawyers make some unsupported assertions before a congressional committee, it doesn't follow that the victims of their allegations are, without trial, guilty of all the high crimes and misdemeanors with which it has suited these officials' purpose to charge them. So says the attorney general, who has not heretofore been noted for any great fondness for the railroads. Our news report this week of his rebuff to Congressman Bender indicates that even this administration's top law officer recognizes the need of some proof to make a case in court. And, he says, he hasn't seen the proof!

FIRMER FOUNDATION: The latest "Monthly Comment" from the Interstate Commerce Commission sums up the figures that reveal the railroads' progress in getting out of debt —or, more important, in reducing the fixed interest charges they have to pay for capital borrowed for their business. Even since 1943, there has been a cut of over 26 per cent in these outlays. In other words, the railroads now have $117 million a year to spend for betterments or supplies that went to bondholders five years ago. The article on page 96 gives more facts about this significant improvement in the railroads' credit.

COMPETITION LIMITED: The Interstate Commerce Commission has turned thumbs down on the proposal of the Santa Fe and the Burlington to set up a joint line between Kansas City and St. Louis which would make the former road an active competitor for the business, freight and passenger, between the two cities, especially that from points beyond for which they serve as gateways. The roads already in the field are sufficient, according to the commission, though the dissenting minority takes the position that competition is a spur to progress that is in the national interest. The reasoning on which the commission upheld the basic contentions of the protesting carriers is outlined in our news columns.



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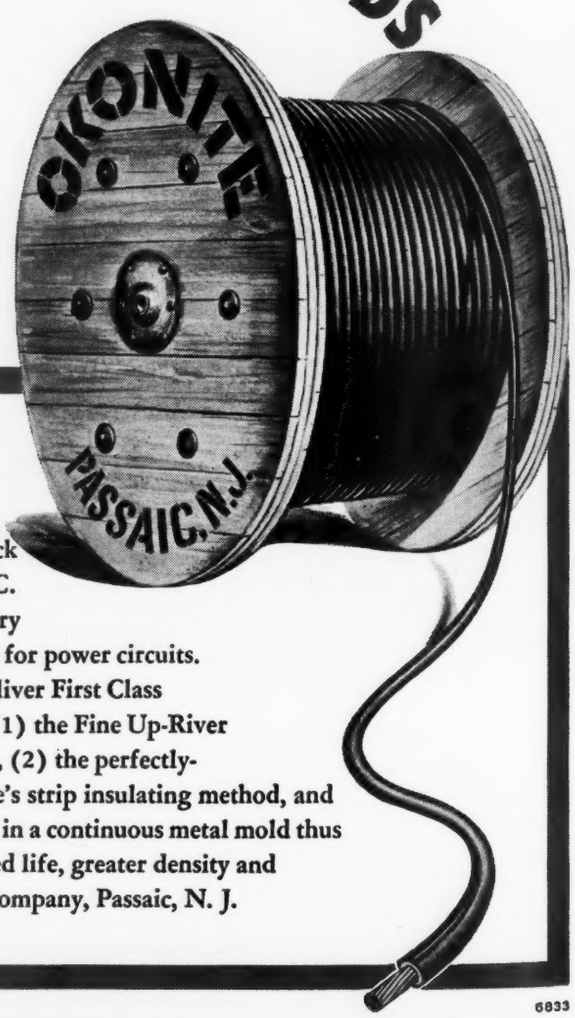
USED BY 64** CLASS 1 RAILROADS



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OKONITE OKONITE SINCE 1878 **insulated wires and cables**

THE BEST CABLE IS YOUR BEST POLICY

RAILWAY AGE

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RAILROAD "SHOW BUSINESS" ON LAKE MICHIGAN

Four days ago a group of 38 sponsoring railroads opened the Railroad Fair at Chicago, said by expert showmen to be the most elaborate exhibit ever presented by a single industry at its own expense. The capital outlay of $1¼ million for the pageant, readying the fair grounds, and administration is being borne by the sponsors, with outlays proportional to their respective gross revenues up to a maximum of $75,000. It is hoped that the pageant will pay for itself through admission fees; gate receipts may help carry a portion of the burden of other costs. Aside from these, the show as a whole is "on the railroads."

Characterized by Action and Color

In addition, 23 individual roads among the sponsors are spending at least another $1 million on their own exhibits on the site. Finally, a total of 26 supply and service organizations are putting in large sums of money to build and operate a like number of fine exhibits, the total of which cannot even be estimated at this writing.

The participating railroads and cooperating suppliers have done everything possible to make the big show attractive to practically anyone. There is not a single "stuffy" exhibit in sight. There is absolutely no "propaganda." An industry which is old, methodical and careful, and which is accused, in some places, of lack of imagination, has come through with a show full of "life," action and humor which people are going to remember for a long time. The railroads have looked carefully at their past and their present and distilled from them the natural elements of romance, adventure, and color which lie therein. These qualities they have dramatized with the aid of the newest and most striking marvels in the showman's bag — working reproductions, pageantry, motion pictures, audience-actuated working models, "soft lights and music," dancing, thrills and "rides."

The Railroad Fair has the atmosphere of a well-run circus. Flags are everywhere. At night lights play across the sky. Many exhibits are housed in tents. Some western roads are giving a rodeo. Another has brought in a whole Indian community to show another way of life. A manufacturer has set up a giant "merry-go-round." At least four motion-picture shows will be available and several theatrical presentations, apart from the pageant itself. A narrow-gage railroad and appurtenances re-create the scene of Colorado boom-mining days. Presentations of this type have a time-tested natural public appeal.

The effect of all this well-planned and expensive showmanship cannot fail to profit the railroads if enough people come to enjoy it. It will probably have the effect of interesting additional

thousands in the railroads as a technical mechanism. It will impress all those who attend with the importance of the railroads in their daily lives, and do so painlessly. It will immeasurably extend a sense of history and the railroads' role in the building of the country. Most important of all, it will associate "soulless corporations" with "a good time" — and thereby give them souls.

Background of the Fete

The fair is being held in 1948 because 100 years ago the first steam locomotive ran in and out of Chicago on the Galena & Chicago Union, which event the successor Chicago & North Western is celebrating separately in October. The idea for the big show germinated with a group of railroad publicity and newspaper men in January. Since Chicago is the world's undisputed railroad center, and the railroads made the city, they reasoned, why not create a national celebration of the centenary of Chicago railroading?

It is true that a Rogers-built steam locomotive operated on the Northern Cross (now Wabash) road in west central Illinois as early as November, 1838. While this line operated only spasmodically for a decade thereafter, it is credited by many historians with having started off that distinct and romantic phase of our past called "western railroading." Nevertheless there is merit in the claim that the opening of Chicago's first road is as important a marker in the extension of rails to the West, because it was privately built, in contrast to the state-built Northern Cross, and because it established Chicago as the primary meeting place of East and West.

In any event, there is a distinct western flavor in the Railroad Fair, embodied in the majority of scenes in the pageant and in such exhibits as Indian villages and presentations of Western scenery. To this extent the Fair celebrates that unique manifestation of private enterprise which pushed out the rails before there existed the business for them; which established the trade patterns for a whole empire west of Chicago and decided where most of the cities and towns would lie and what names they would bear.

But in no sense is the Fair's theme confined to western railroading, to a centennial or to Chicago. Railroads in all parts of the country are paying for and participating in the Fair. It is a national event. Its aim is to show a wide public the importance of all the railroads in their past and their present by bringing out what is most interesting and romatic in the railroad scene. As the president of the Fair puts it: "I want the public to associate railroads with a pleasant day or two spent at their show."

It is an event which might with equal appropriateness have been held in 1930, to mark the centennial of operation of the first common carrier railroad service for freight and passengers by the Baltimore & Ohio in May, 1830. The B. & O., to celebrate the centennial of its charter, gave the public the memorable "Fair of the Iron Horse" in 1927. The extent of public acceptance of this dignified and well-planned show led *Railway Age*, in an editorial of October 8, 1927, to suggest that all the railroads in the country consider presenting a national fair in 1930 to recognize the centenary of the railroad as a common carrier. The depression frustrated any such undertakings. Now, with traffic at high levels, the railroads have come forth with such a national fair. That the public will be entertained, there is no doubt. It may be hoped also that the show will accomplish, on a larger scale, what this paper believed resulted sectionally from the "Fair of the Iron Horse"—namely: "To make the public realize the magnitude of the contribution the railroads have made to the nation's progress and well-being, what has rendered it possible for them to make this contribution, the extent to which they can contribute toward its progress and prosperity in the future, and how they must be treated to enable them to make this contribution."

A Return to Law and Order

It is good news, indeed, that the quarrel between the rail managements and the engineers', the firemen's and the switchmen's unions is settled. It is even better news that it is settled largely on the terms recommended by the presidential fact-finding board set up under the National Railway Labor Act. For such a settlement represents a return to law and order in the handling of rail labor disputes.

Think of the background. The three unions originally proposed a strike to enforce claims greatly exceeding the fact-finders' award. . . . Naturally the government could not permit such a strike. It took the roads over and then applied for an anti-strike injunction. An injunction was issued, first temporary, then permanent. And the injunction worked. Despite all the cries to the contrary . . . it was demonstrated in the present case that you *can* run trains with an injunction. . . .

But the mere issuance of the injunction is not the only nor, indeed, the most important triumph of law and order on the rails. The unions' original recalcitrance rooted in mistaken practices which grew up during the war. . . . In 1941 and after, the White House developed the practice of giving the unions better settlements than its own fact-finders had offered. All that the rail unions needed to do to qualify for these better White House settlements was to flout the original recommendations of White House fact-finders.

Not unnaturally the peaceful devices of the Railway Labor Act shriveled up and in effect blew away under this kind of policy. So the fact that the latest controversy is settled at long last not by White House concessions better than the fact-finding report but on pretty much the terms of that report is of more than topical importance. For it may well mean the first step toward a rehabilitation of the Railway Labor Act.

—*The Baltimore Sun*

1848
Railroad Fair
AT CHICAGO
Biggest Railroad Show
"Wheels-A-Rolling"
Individual Railroad Exhibits
Manufacturers' Exhibits
1948
One Hundred Years
Of Railroad Progress

FAIR FACTS

OFFICERS
President, Major L. R. Lohr, head of the Chicago Museum of Science & Industry
Vice-President, R. L. Williams, president, Chicago & North Western
Treasurer, Wayne A. Johnston, president, Illinois Central
Secretary, G. Murray Campbell, vice-president, Baltimore & Ohio

DATES
July 20-through September

LOCATION
Chicago, between 20th and 30th streets, on Lake Shore Drive

ADMISSION PRICES (tax included)
To grounds, 25 cents
To pageant, 60 cents
For ride on narrow-gage railroad, 10 cents

HOURS OF FAIR
10 a.m. to 10:30 p.m. daily

TIMES OF PAGEANT PRESENTATION
2 p.m., 4 p.m., 7:15 p.m. and 9 p.m.

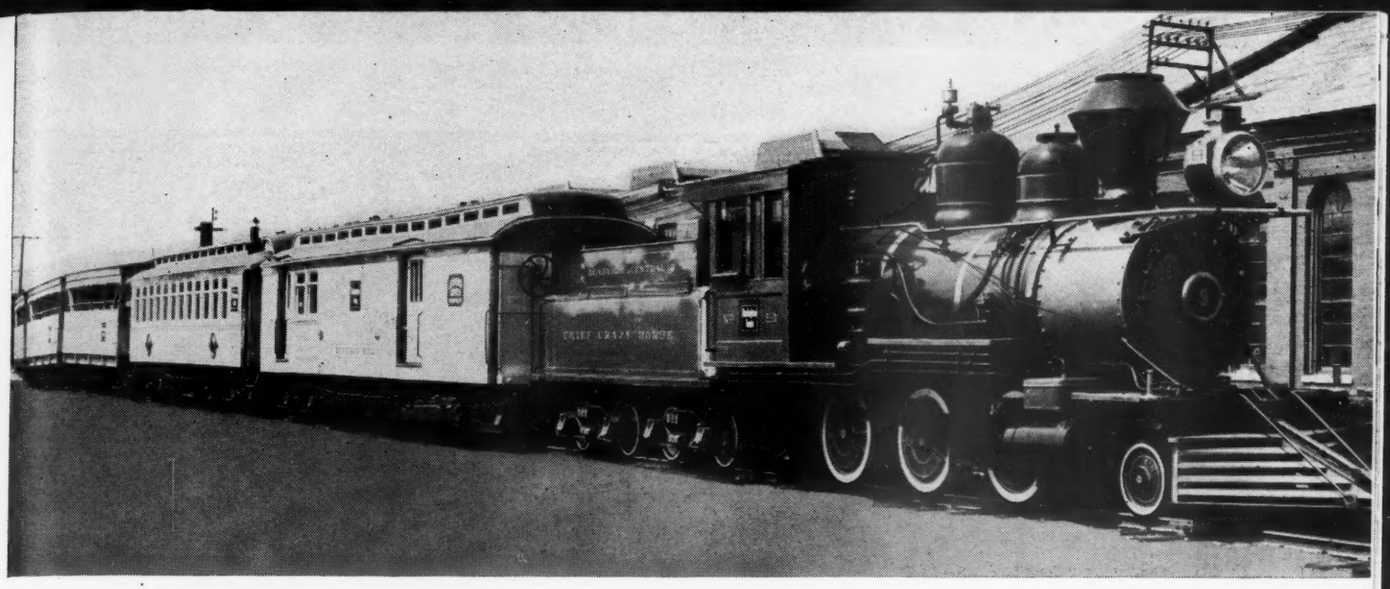
PUBLIC TRANSPORTATION TO GROUNDS
Illinois Central—Board suburban train from "Loop" stations along Michigan Avenue, at Randolph, Van Buren or Twelfth streets. Detrain at 23rd street station and proceed east on 23rd to Fair.
Surface Lines—Any car line south from "Loop" (except Dearborn) will intersect with 22nd street line leading direct to Fair entrance.

HOW TO REACH CAR PARKING AREA
Enter 23rd street entrance and proceed east to large paved oval, thence south on paved road to parking lot.

SPECIAL RAILROAD DAYS

July 21	Chicago & North Western
July 22	Chicago, Burlington & Quincy
July 23	Illinois Central
July 26	Chicago, Rock Island & Pacific
July 27	Chicago, Milwaukee, St. Paul & Pacific
July 28	Wabash
July 29	Atchison, Topeka & Santa Fe
July 30	Union Pacific
August 1	Denver & Rio Grande Western
August 2	Chicago & Eastern Illinois
August 3	Chesapeake & Ohio
August 4	Pennsylvania
August 10	New York-Central
August 11	Pullman Company
August 12	Erie
August 13	Boston & Maine
August 14	Baltimore & Ohio
August 16	New York, Chicago & St. Louis
August 17	Chicago, Indianapolis & Louisville
August 18	Gulf, Mobile & Ohio
August 19	Grand Trunk Western
August 23	Elgin, Joliet & Eastern
August 25	Wisconsin Central
August 26	Spokane, Portland & Seattle
August 27	Chicago & Illinois Midland
September 2	Minneapolis & St. Louis
September 4	Texas-Mexican

The entertainment value of the railroads' exhibits is typified by these Hopi Indian boys engaged in handicraft in the Santa Fe's Indian Village



This narrow gage train operates regularly over the "Deadwood Central" line at the fair

"GREATEST RAILROAD SHOW" HAS GALA OPENING

Entertainment-packed spectacle celebrating railroad progress began ten-week run July 20 along mile of Chicago's lake front

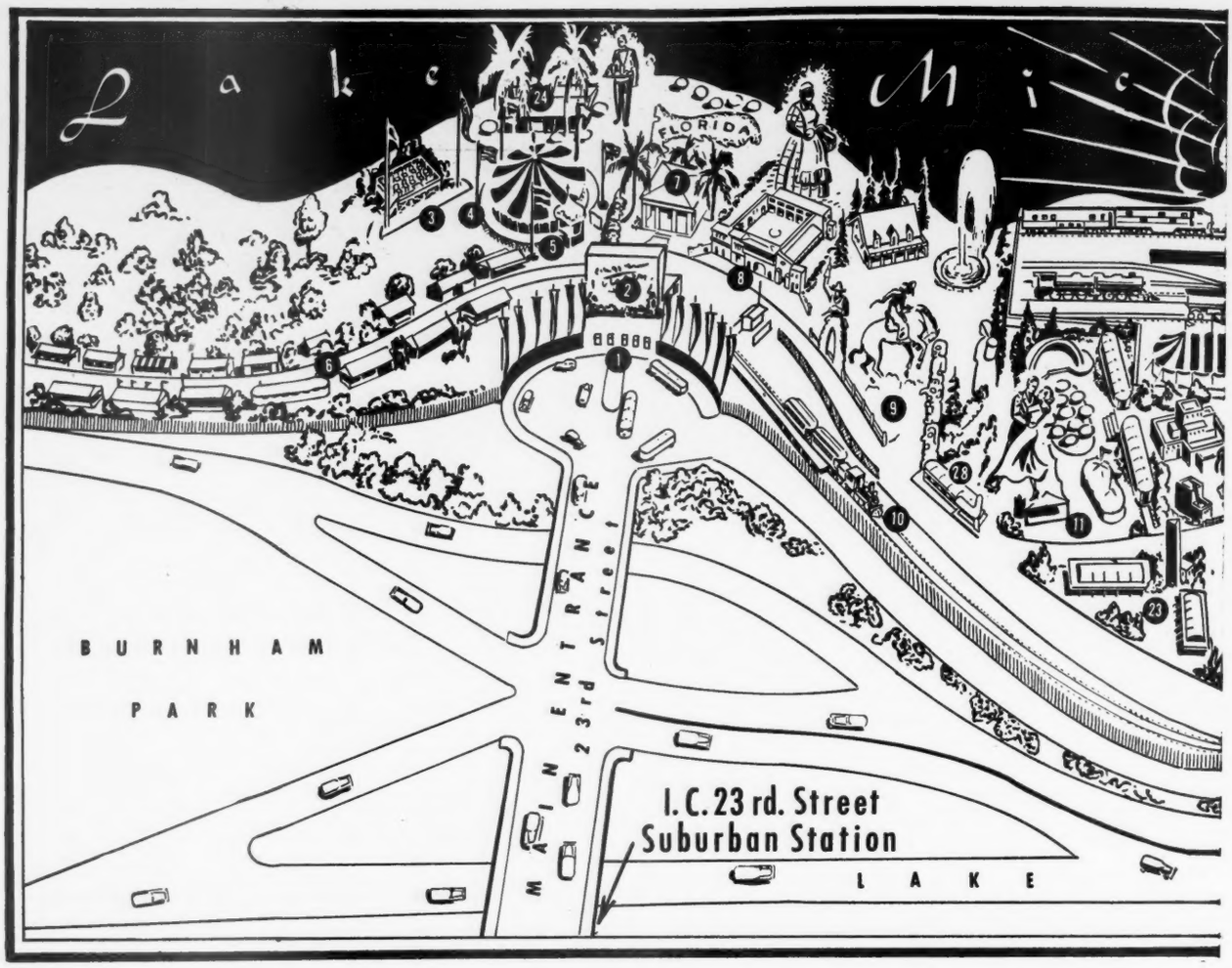
The gates of the Railroad Fair at Chicago were thrown open at 10 a.m. on July 20, admitting to its 50 acres of elaborate stationary exhibits, rolling stock and concessions a host of sightseers whose numbers swelled to 40,062 by evening. Children and grownups alike attended and enjoyed the Fair on its first day. Railroad fans, eager in the knowledge that such an extravaganza comes seldom during a lifetime, clicked their camera shutters frequently and ecstatically.

A preview of the Fair's festive nature was seen by Chicagoans on July 19, when Indians, cowboys and other entertainers paraded through the city's "Loop", along with motor-driven replicas of railroad equipment. A featured participant was Mrs. J. L. "Casey" Jones, widow of the famous locomotive engineer.

Continuing at least through September, the Fair offers an opportunity to view, on 2½ miles of special track, the largest gathering of old-time and

Old-Time Locomotives and Replicas in Pageant

(1) "Stourbridge Lion," which, on August 8, 1829, became the first practical steam locomotive to operate on permanent railroad track in America (owned by Delaware & Hudson)
(2) "Rocket" (1829), generally considered the world's first successful steam railroad locomotive (owned by the Chicago Museum of Science & Industry)
(3) "Best Friend of Charleston" (1829), first American-built locomotive in regular scheduled service (Southern)
(4) "Tom Thumb" (1829), the Baltimore & Ohio's steam locomotive
(5) "DeWitt Clinton," which, on August 9, 1831, became the first locomotive to pull passenger trains in New York State (New York Central)
(6) "John Bull," which was first placed on rails November 12, 1831, in New Jersey, and is claimed to be the oldest locomotive in America preserved in complete form (Pennsylvania)
(7) "Atlantic," B. & O. locomotive of 1832
(8) "Lafayette" of 1837, first long-boilered locomotive on the B. & O.
(9) "Pioneer," built in 1838, and which in 1848 became the first railroad locomotive to operate out of Chicago (Chicago & North Western)
(10) "William Mason" of 1858
(11) "William Crooks" of 1861, first engine owned by the Great Northern
(12) and (13) A sister engine to the bonnet-stacked "Jupiter" of the old Central Pacific (Southern Pacific) and "No. 119" of the Union Pacific, the two engines which met in the celebrated scene at Promontory, Utah, in 1869, when the golden spike joined East and West
(14) "Minnetonka" of 1870, first locomotive of the Northern Pacific
(15) Locomotive No. 2 of the Missouri-Kansas-Texas Lines, representative of the 1870's
(16) Burlington Lines No. 637 of the 1880's
(17) The "201" locomotive of the Illinois Central, built in 1880 for main-line and surburban service
(18) No. 999 which in 1893, pulling the "Empire State Express" from Rochester, N. Y., to Buffalo, attained a speed of 112½ m.p.h. (N. Y. C.)
(19) Early Santa Fe locomotive, "Little Buttercup"
(20) "Thatcher Perkins" of 1863, first 10-wheel passenger locomotive of the B. & O.
(21) No. 222 of the Chicago & Eastern Illinois, an Atlantic-type locomotive of about 1900



GRAPHIC MAP OF THE RAILROAD FAIR GROUNDS, SHOWING BY NUMERICAL

(1) Main entrance. (2) Administration building. (3) Lakeside stage (for introduction of visiting dignitaries). (4) Plaza of Flags. (5) Heywood-Wakefield "Merry-go-round." (6) Exhibits of railroad supply and service organizations. (7) "Florida in Chicago" exhibit of Chicago & Eastern Illinois. (8) Illinois Central's street scene and patio representing the old French quarter of New Orleans. (9) Joint dude ranch and rodeo exhibit of the Burlington Lines, Great Northern and Northern Pacific. (10) "Deadwood Central" station on narrow-gage railroad system. (11) Chicago, Rock Island & Pacific's "Rocket Village." (12) Santa Fe's Indian Village. (13) Eastern Railroads' exhibit. (14) Grandstand for "Wheels-A-Rolling"

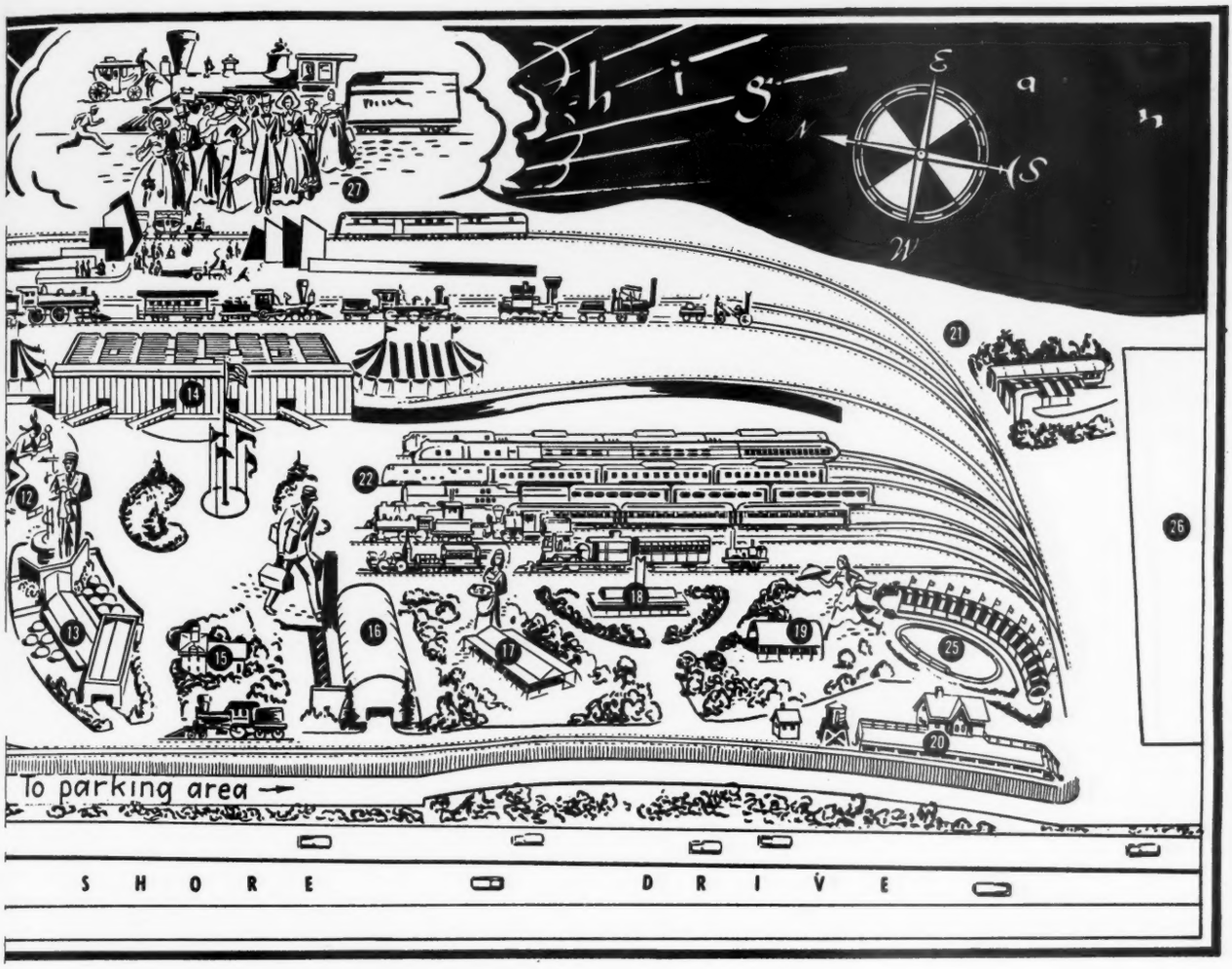
modern railroad rolling stock ever assembled for a non-operating purpose. In addition, patrons may visit accurate full-scale reproductions of such places as New Orleans' old French Quarter, a New Mexican Indian village and many others equally interesting. In brief, the 23 exhibiting railroads have combined to telescope into a limited area many of the scenic and picturesque wonders of the nation.

Similarly designed to entertain and instruct John Q. Public are the extensive displays of 26 railroad supply and service organizations. One firm, for example, has set up a free "merry-go-round" equipped with railroad car seats which it manufactures. Many of the railway equipment exhibits are to be found in colorful tents and "alumadromes" just north of the 23rd street entrance, while others are located at various points throughout the grounds. These attractions are but a few which may be enjoyed for the 25-cent admission price.

For an additional 60 cents the customer may sit in a 5,000-seat grandstand overlooking Lake Michigan and watch the history of transportation unfold in a fast-moving pageant lasting 1¼ hours. A dime pays

Invite Railroaders to Cook County Fair Near RR Area

Railroad men are invited to attend the Cook County Fair, which will run concurrently with the Railroad Fair at Chicago during the week of August 27-September 6, inclusive. It is to be located at Soldiers' Field and adjoining areas just north of the Railroad Fair area. The county fair will feature four miles of commercial, industrial, agricultural and other exhibits and a large entertainment midway.



DESIGNATIONS THE POINTS OR FEATURES OF SPECIAL INTEREST

pageant. (15) The Chicago & North Western's reproduction of Chicago's first railroad station. (16) Pullman Company display. (17) Central restaurant. (18) Timken Roller Bearing exhibit. (19) South restaurant. (20) "Central City," reproduction of "Old West" station on narrow-gage railroad. (21) The Budd Company's exhibit. (22) General track exhibits. (23) Pullman-Standard Car Manufacturing Company's exhibit. (24) Island View restaurant. (25) Union Pacific's western travel presentation. (26) Parking lot (capacity for 1,750 cars). (27) Pageant stage. (28) Denver & Rio Grande Western's exhibit.

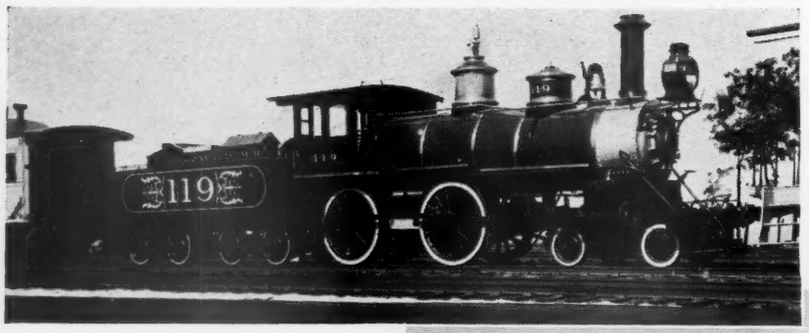
for a ride on the "Deadwood Central," historic narrow-gage railroad which actually operated during the Colorado mining days of the seventies and eighties.

Thirty-eight leading railroads are sponsoring the Fair, which stems from the fact that, 100 years ago, the "Pioneer" of the Galena & Chicago Union (now Chicago & North Western) made the first run of a steam locomotive west from Chicago. The plan to celebrate this history-making event was conceived late in January and the site for its presentation (that of the 1933-1934 "Century of Progress") was selected the following month. Construction work was begun the middle of April. During the short period which lapsed between the breaking of ground and the Fair's opening, the Railroad Fair Corporation and exhibitors completed in excess of $3,000,000 worth of construction.

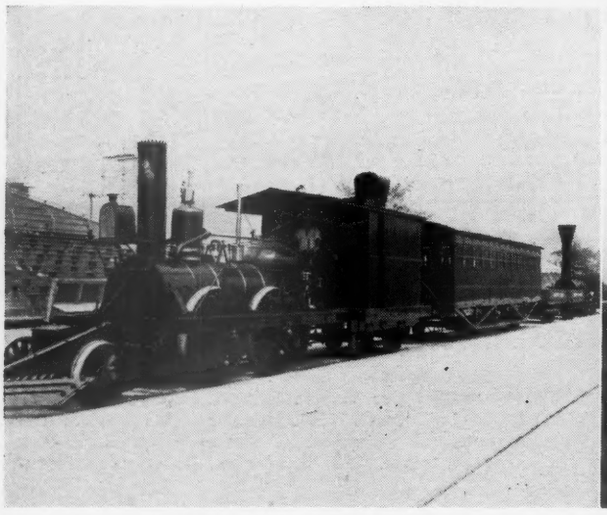
The spectacle is described as the "largest public attraction of its kind ever sponsored by a single industry or group of industries in this country." Unlike many industrial expositions, the Railroad Fair has for its primary objective the entertainment of the public and not the presentation of technical exhibits which can be enjoyed only by those intimately acquainted with the industry. To this end, the Fair is spiced with a carnival-and-circus atmosphere, evidenced most notably by displays on a grandiose scale and stunts of showmanship. A nine-foot talking robot and a giant pair of overalls extending 50 ft. into the air are but two examples of the technique employed by exhibitors to maintain public interest. This interest is further enhanced by the vacation-holiday theme woven into many of the railroad exhibits.

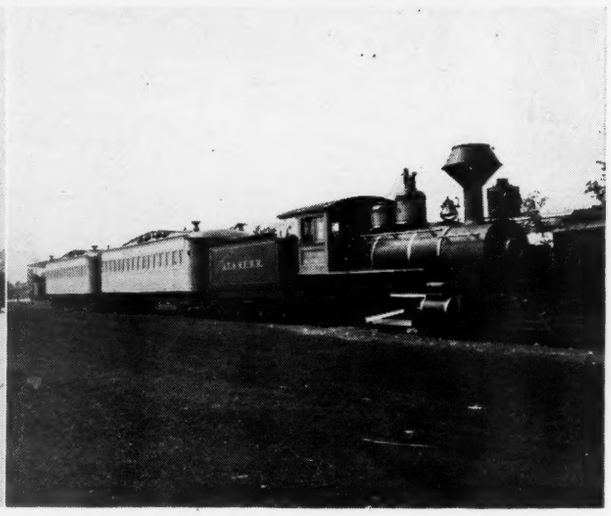
The Fair—open from 10 a.m. to 10:30 p.m. daily—is calculated to offer each visitor two full days of enjoyment. A wide variety of extra entertainment, such as free movies, radio shows, singing and dancing festivals, stage shows and musical programs, is

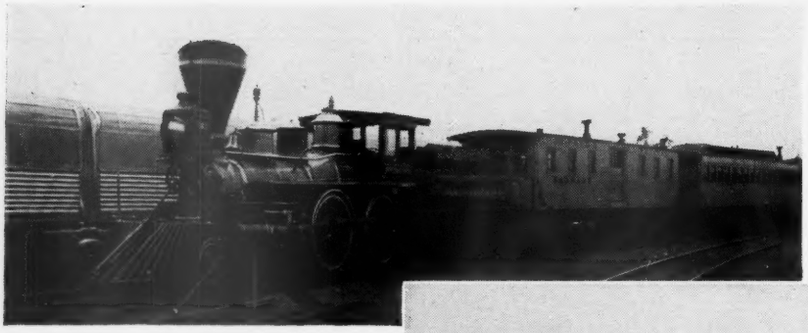
LOCOMOTIVES



Above—"No. 119" (took part in the joining of East and West at Promontory, Utah, in 1869), Union Pacific. (Right—Motive power awaiting "on stage" cue for pageant



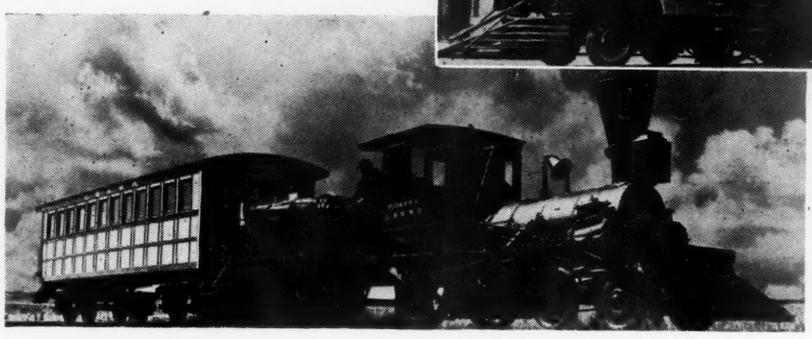




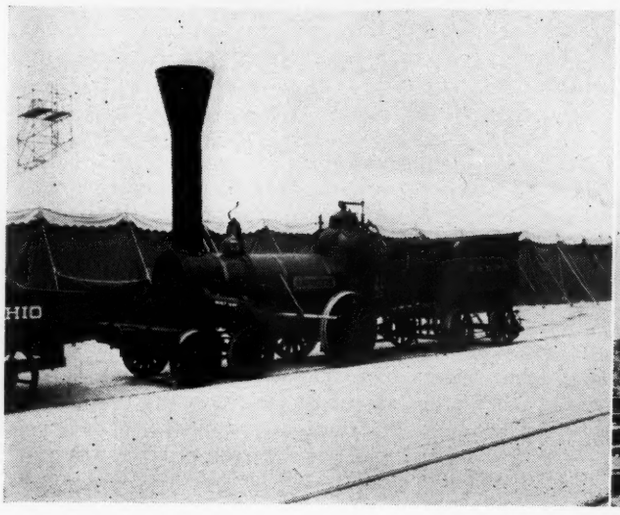
Above left—"John Bull" (1831), Pennsylvania. Above right—"Little Buttercup," Atchison, Topeka & Santa Fe

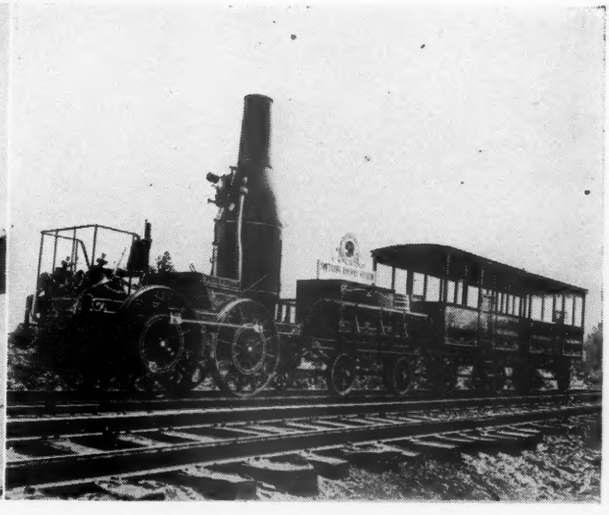
Above—"William Crooks" (1861), Great Northern. Right—"No. 2222" (about 1900), Chicago & Eastern Illinois

ON EXHIBIT

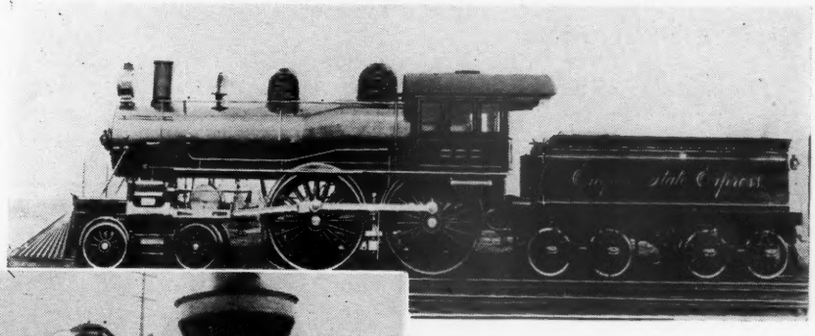


Above—"No. 637" (1880's), Burlington. Left—"Pioneer" (1838), Galena & Chicago Union (now Chicago & North Western)

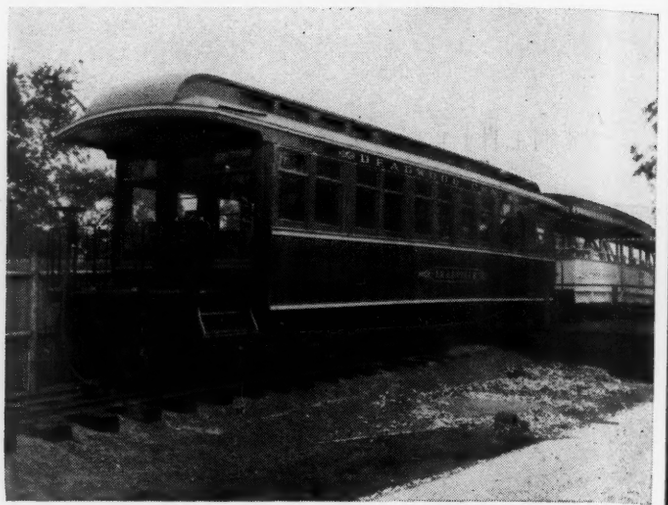




Above left—"Lafayette" (1837), Baltimore & Ohio. Above right—"Best Friend of Charleston" (1829), Southern



Above—"No. 999," attained 112½ m.p.h. while pulling the "Empire State Express," (1893), New York Central. Left—"Minnetonka" (1870), Northern Pacific



Left—"Central City" station on narrow-gage railroad. Right—Visiting dignitaries will ride in this narrow-gage coach. Below—Pageant grandstand seats 5,000 persons

slated for each day. Many festivities are arranged in connection with special days for railroads, states, cities and organizations.

Pageant Is Main Feature

The headliner of the Fair's many attractions is the transportation pageant, "Wheels-A-Rolling," presented daily at 2 p.m., 4 p.m., 7:15 p.m. and 9 p.m. The initial action of this spectacle dates back to 1673, when the canoe, horse and dog-drawn travois were the sole modes of transportation in the interior of the continent. In subsequent scenes, the pageant traces chronologically the story of transportation through the days of the circuit riders, the stage coach, the freighting wagon and wood-burning locomotive, up to today's modern streamlined equipment.

The action takes place on a 450-ft. concrete stage, and employs 220 professional actors wearing 800 period costumes. Some 70 horses and mules are stabled for the show. An array of ancient locomotives representative of the various periods of history move under their own steam across the stage on three separate tracks (see accompanying list). Many beasts of burden, old-time automobiles, horse-drawn carriages, bicycles and other props appear in the show.

All action is presented in pantomime, divided into acts and scenes, while two narrators relate the story in the manner of a Greek chorus. Prominent among the 12 scenes are the eventful run of the "Pioneer" in 1848; Lincoln's farewell address as he leaves Springfield, Ill., for the White House and, later, the solemn procession of the Lincoln funeral train; the driving of the golden spike at Promontory, Utah; a Harvey House scene; and the famous 1,024-mi. run of the

(*Continued on page 97*)

RAILROADS SPONSORING THE FAIR

Atchison, Topeka & Santa Fe
Baltimore & Ohio
Boston & Maine
Burlington Lines
Chesapeake & Ohio
Chicago & Eastern Illinois
Chicago & Illinois Midland
Chicago & North Western
Chicago Great Western
Chicago, Indianapolis & Louisville
Chicago, Milwaukee, St. Paul & Pacific
Colorado & Wyoming
Denver & Rio Grande Western
Duluth, Missabe & Iron Range
Elgin, Joliet & Eastern
Erie
Grand Trunk Western
Great Northern
Green Bay & Western Lines
Gulf, Mobile & Ohio
Illinois Central
Lake Superior & Ishpeming
Maine Central
Minneapolis & St. Louis
Monongahela
New York Central System
New York, Chicago & St. Louis
Northern Pacific
Pennsylvania
Pittsburgh & West Virginia
Pullman Company
Chicago, Rock Island & Pacific
Minneapolis, St. Paul & Sault Ste. Marie
Spokane, Portland & Seattle
Texas-Mexican
Union Pacific
Wabash
Norfolk Southern

TWENTY-THREE ROADS COOPERATE IN TWELVE FEATURE EXHIBITS

More than 80 units of motive power and rolling stock displayed; colorful aspects of railroading stressed for public entertainment

Virtually every type of locomotive and car employed in the performance of America's daily freight and passenger service is represented in the carriers' and carrier affiliates' exhibits at the Railroad Fair at Chicago. This equipment is displayed principally in a six-track yard designated as the "track exhibit." In addition, 12 separate exhibits, ranging from an authentic reproduction of an Indian village to elaborate model railway systems in dioramic settings showing modern transportation, are spaced throughout the 50 acres of fairgrounds.

Spectators may visit a reconstructed French Quarter setting of New Orleans, a Southern colonial mansion with transplanted citrus trees and Florida flora, or a Western chalet with a nearby working replica of "Old Faithful" geyser. They may watch a real rodeo, or participate in Mexican quadrilles or old-time square dances. They may sit in on a radio broadcast and join in audience-participation programs or amateur hours. Watching motion pictures in the comfort of an air-conditioned railroad car, or viewing elaborate dioramas of scenic North America, visitors may travel, vicariously, from coast to coast and border to border.

The entertainment and educational values of the railroads' exhibits—every one designed to appeal to the widest possible segment of the population— are evident in the following brief description of each. Key numbers in parentheses refer to locations shown on the map of the Fair in the preceding article.

Eastern Roads' Exhibit

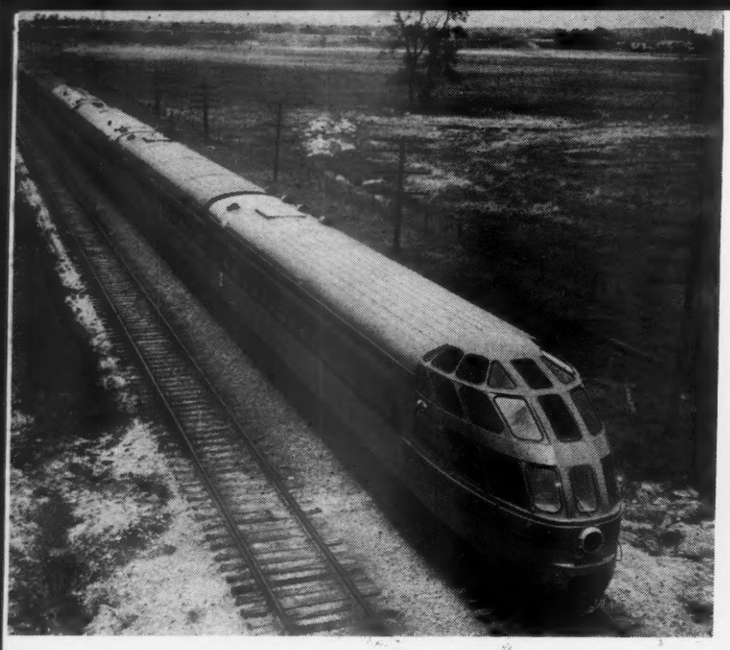
Nine roads are cooperating in the Eastern Railroads' exhibit (13) which includes a theme center, display buildings and an outdoor restaurant. The participating roads are the *Baltimore & Ohio; Boston & Maine; Erie; Maine Central; Chicago, Indianapolis & Louisville; New York Central; New York, Chicago & St. Louis; Pennsylvania;* and *Wabash.* At the entrance to the display is a railroad information booth with a 45-ft. tower made of chrome-plated railroad rails and topped by a revolving jeweled prism ball. Giant fins, 28 ft. by 30 ft., display paintings of locomotives of the nine systems. A 9-ft. foam-rubber robot, dubbed "Genial Joe" and garbed in engineman's overalls, answers questions which visitors direct to him.

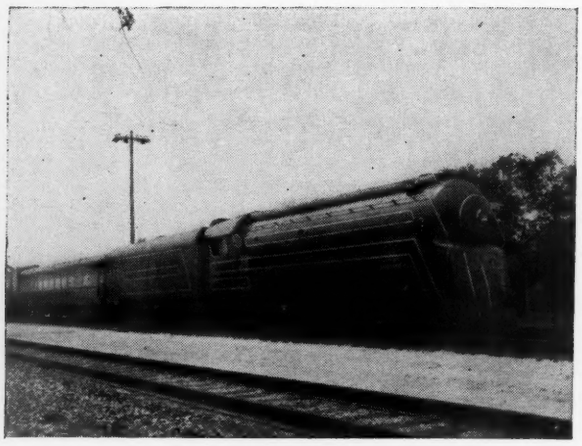
The North Western's replica of Chicago's first railroad station serves as a playhouse—furnishing continuous entertainment for visitors

The first display building contains exhibits featuring the comfort, safety and service of modern railroad travel and the efficiency of rail freight transportation. This area is separated from an adjoining scenic spectacle by train gates, manned by uniformed attendants. Twelve large revolving cylinders display scenic dioramas, sculptured and illuminated, and photo-murals. A third unit houses a model railroad in an area 20 ft. by 50 ft. Inside the loop of miniature track, over which model trains representing the nine railroads operate, are four giant picture books—the pages of which turn automatically—presenting scenic railroad photographs. A fourth section, adjoining, is a motion picture theater where films of the eastern roads are shown.

The sides of the building are open, protected from the weather by 12-ft. awnings, creating a patio where the public may dine beneath brightly-hued umbrellas. In a special area set aside for children, midgets serve the youngsters at diminutive tables.

At the track exhibit (22), the equipment of the nine Eastern roads is made up into two composite trains, one freight, and one passenger, each 1,000 ft. in length. The *Baltimore & Ohio's* portion of the trains includes a modern steam freight locomotive of the 2-8-8-4 type, B.&O. class EM-1; a streamlined Pacific-type passenger locomotive used to power the "Cincinnatian"; a streamlined coach; a "Sentinel" box car; an aluminum hopper car; and a bay-window caboose. The *Chicago, Indianapolis & Louisville* is dis-





Left—Six cars, including the sky-top lounge, and the Diesel locomotive of the Milwaukee's "Twin Cities Hiawatha" are on display at the Fair. Right—The streamlined locomotive of the B. & O.'s "Cincinnatian" and one of its coaches are included in the Eastern roads' composite passenger train

playing its box car No. 1. About August 1 a diner-club-bar car—converted from a U. S. Army hospital car at the Monon's shops—will join the composite passenger train. The *Boston & Maine* and the *Maine Central* have on the track a modern Budd coach of the type used in joint service on the "Flying Yankee" and other "down East" trains. An "economy safe load" box car and a depressed flat car used for shipping heavy and bulky freight are exhibited by the *Erie*. The *Wabash* has on display an automobile box car and a modern refrigerator car of the American Refrigerator Transit Company. In addition, a replica of the "Rogers," which was built in 1838 and was the first locomotive to operate in Illinois, will be displayed by the Wabash at a site apart from the general exhibition track.

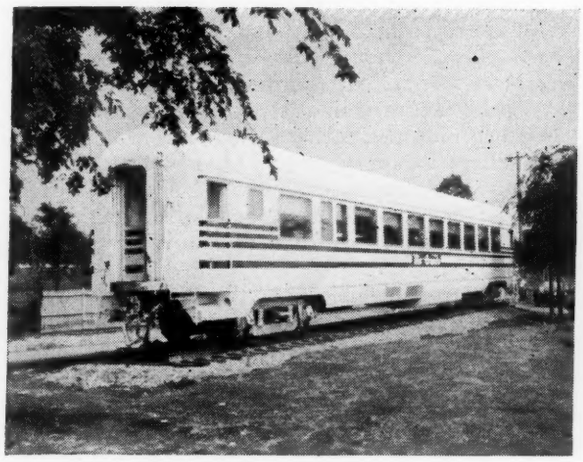
The *Pennsylvania* contributes to the make-up of the two trains with a GG-1 class electric locomotive of the type used in the electrified territory east of Harrisburg, Pa.; a T-1 class coal-burning steam locomotive with a 4-4-4-4 wheel arrangement; a coach designed for overnight travel; the modern railway post office car "Robert E. Hannegan"; a gondola; a 60-ft. merchandise box car, equipped with built-in racks for heavy and damage-free l.c.l. loading; a well-type flat car; a covered hopper car; and a radio-equipped cabin car (caboose). The Pennsylvania is also displaying the 0-10-0 type locomotive "Reuben Wells," built in 1858 for the Jeffersonville, Madison & Indianapolis, and a Cumberland Valley coach of the same era.

The *New York Central* is showing a locomotive of

Left — The Army Transportation Corps' exhibit includes a machine-shop car of the type used by the Military Railway Service

Facing page (left)—This western chalet, housing the exhibits of the Burlington, the Great Northern and the Northern Pacific, is in a setting of fir trees transplanted from the Northwest. (This photograph was taken during final stages of preparation.)

Facing page (right)—More than 100 Indian tribesmen are staying throughout the Fair in the Santa Fe's authentic reproduction of their southwestern villages



Left—Movies of the scenic West are shown in an air-conditioned Denver & Rio Grande Western coach. Right—C. & O. No. 500, a steam-turbine electric, is available for inspection at the track exhibit

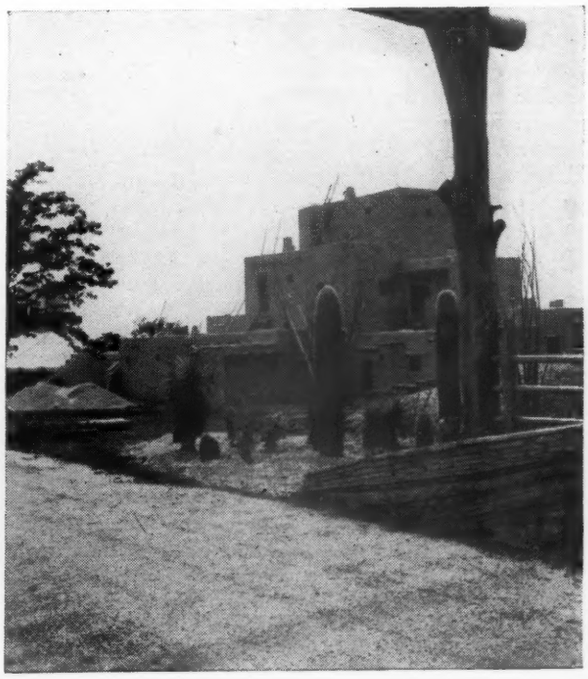
the "Niagara," or 4-8-4 class; a streamlined observation car; a roomette sleeper; a twin-diner—with meal service facilities in one unit and kitchen and lounge space in the adjoining unit; a hopper car; a "Pacemaker" box car; and a refrigerator car of the Merchants Despatch Transportation Company.

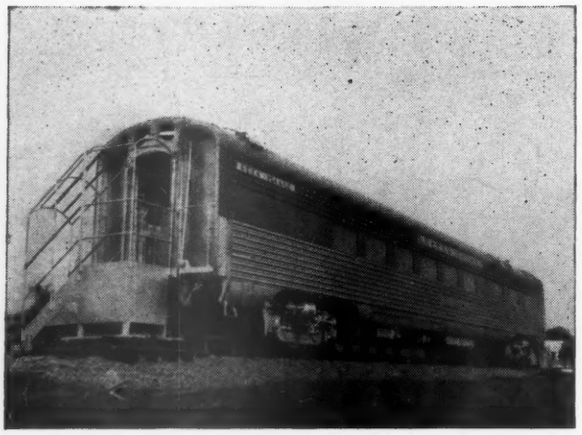
Western Roads' Exhibits

A dining car meal may be had on the grounds in the *Chicago, Rock Island & Pacific's* newly delivered "Fiesta" diner, "El Cafe," which is located on the lake side of the Rocket Village (11). All meal service is handled by reservations (which may be made by telephoning WAbash 3200 and asking for "Fiesta"). With the "El Cafe" is the "La Mirada," a lounge-observation-sleeper which departs from conventional design in that the windows are ceiling-high to afford wider vision.

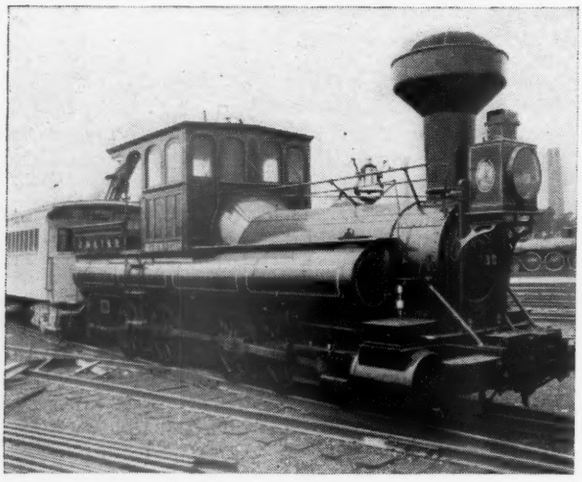
A tented dance floor is provided where visitors to the village may dance to western music. Eight professional dancers in western garb assist the public in the intricate steps of the square dance, quadrilles and other routines, and contests are staged for the best dancing couples. In another part of the village are shown technicolor movies featuring a journey to Colorado via the "Rocky Mountain Rocket."

The *Union Pacific* exhibit (25) features more than





Above—"El Cafe," a luxurious Rock Island dining car, serves as a fairground restaurant. Meals are by reservation only. Below—the "Reuben Wells" of 1858 is part of the Pennsylvania's on-track display. It is coupled to a Cumberland Valley coach



250 ft. of model railroad—complete with block signaling—over which operate replicas of U. P. trains, including the streamliner "City of Los Angeles." The model trains run past the exhibits of 11 cooperating western states, each featuring in its own booth the industrial opportunities and vacation attractions it offers. On track (22) the Union Pacific has placed its eight-wheeler locomotives No. 18, built in 1874, and No. 22, both used in the early years of the first American transcontinental railroad. No. 460, a consolidation type built at the turn of the century, and No. 1935, a contemporary Mikado, depict the next era in Union Pacific motive power development. No. 4024, the 4-8-8-4 type known as "Big Boy"; a Fairbanks-Morse all-purpose 1,500-hp. Diesel; and a 6,000-hp. Electro-Motive Diesel represent the latest types of power. An air-conditioned theater car with seats for 50 presents movies of the western states. About August 15, a 4,500-hp. Diesel freight locomotive, en route from the American Locomotive Company at Schenectady to the U.P., will join the track exhibit.

Children are offered free trips aboard a miniature railroad encircling the area in front of the Union Pacific's presentation.

Vacation areas of the Rocky mountains and Pacific coast are reproduced in a joint exhibit of the *Chicago, Burlington & Quincy,* the *Great Northern* and the *Northern Pacific,* covering one and one-half acres. A log chalet houses dioramas portraying scenic panoramas, one of which includes an operating model of a streamliner. Western singers alternate with a rodeo in providing continuous entertainment. Giant caricatures of cowboys, Indians, buffalo, mountain goats, and other figures symbolic of the West are spaced through the area.

At the track exhibit (22) the Burlington presents one of the new sleepers to be used on the "California Zephyrs" and a Vista Dome coach of the type already in service on the "Twin Cities Zephyrs" and the "Exhibition Flyer."

The *Atchison, Topeka & Santa Fe* has constructed an accurate replica of an Indian village (12), within which more than 100 Indians, representing six different tribes of the Southwest, carry on the activities of their natural daily life. One of the most authentic and comprehensive collections of Indian arts and crafts, loaned by the museum of Santa Fe, N. M., is on display at the exhibit, which also includes a village trading post, "kivas" (lodge halls), hogans and "wikiups." "Paleface" visitors may roam at will through the village, observing the occupants at work fashioning pottery, baskets, silverware and leather goods. These objects are on sale at the trading post. Two separate contests—one open to high school students in the Chicago area for the best essay on "The Southwestern Indians—Their Customs and Habits," and another open to camera fans for the best photographs of the village—will make available a total of 114 cash and U. S. Savings Bond prizes.

At the track exhibit area (22) the Santa Fe is displaying a "100"-class Diesel-electric locomotive and one of the first road freight Diesels, as well as a 2-10-4 type steam freight locomotive. Four units from the "Super Chief," including a lounge, diner, observation and room-sleeping car, also are on exhibition.

Chicago's first railroad depot (15), constructed in 1848 by the Galena & Chicago Union, has been reproduced to exact scale by the *Chicago & North Western.* Inside is a small theater known as the "400 Playhouse" which furnishes continuous entertainment in the form of motion pictures, radio broadcasts, amateur hours and audience participation programs.

Rubber-tired replicas of the "Pioneer" locomotive and coach, and of a streamlined "400" Diesel and modern coach, are spotted at opposite sides of the old station, and depart periodically to make trips through the fairgrounds. The North Western's museum car, containing several hundred items of railroad historical interest, is located in the track exhibit area (22).

The *Denver & Rio Grande Western* offers continuous motion pictures of the scenic and industrial West in a modern air-conditioned coach (28).

The *Gulf, Mobile & Ohio* has two of its latest passenger cars—a parlor car and a coach—on display in the track exhibit area (22). The cars are staffed with three hostesses normally assigned to the principal trains on the Alton route.

The *Chicago, Milwaukee, St. Paul & Pacific* has on exhibit in the track area (22) six passenger-train cars from the newly re-equipped "Twin Cities Hiawatha."

A 2,000-hp. Diesel locomotive heads up the exhibition train. Next behind the locomotive is a baggage car, an unusual feature of which is the provision of office space for the train conductor, and the housing of the train communication system. Following is a coach; a buffet-lounge "Tip-Top-Tap" car; a diner; a parlor car; and a "sky-top" lounge observation. Musak is played on a public address system throughout the train, with occasional "cut-ins" describing the "Hiawatha's" equipment and service.

New Orleans in Chicago

The *Illinois Central* has reproduced a bit of the French Quarter of New Orleans (18) in an exhibit covering approximately 45,000 sq. ft. Quaint shops and balconies decorated with grillwork front along a brick sidewalk. A 40-ft. by 60-ft. flagstone courtyard features a fountain. Within the building are photographic displays of Illinois Central freight and passenger equipment, of points of scenic interest, and of industries along I. C. lines. A map of the territory served by the road decorates one wall. On an opposite wall the road's suburban system in and near Chicago is charted. Tunes of Stephen Foster are played to soothe the foot-weary, for whom seats beneath beach umbrellas are provided along the lakefront.

The *Chesapeake & Ohio* offers the first presentation of its lightweight "Train X" equipment in the form of a full-scale model passenger car. The car is 33 ft. in length and has only a single axle, since the forward end of each car in the train will be attached to the unit ahead. Locomotive No. 500, the newly completed Baldwin coal-burning steam turbine-electric, occupies 154 ft. of exhibit track—it is described as the largest single-unit passenger locomotive in the world. An all-welded steel hopper car of the type currently under construction for the C.&O. is also included in the track exhibit.

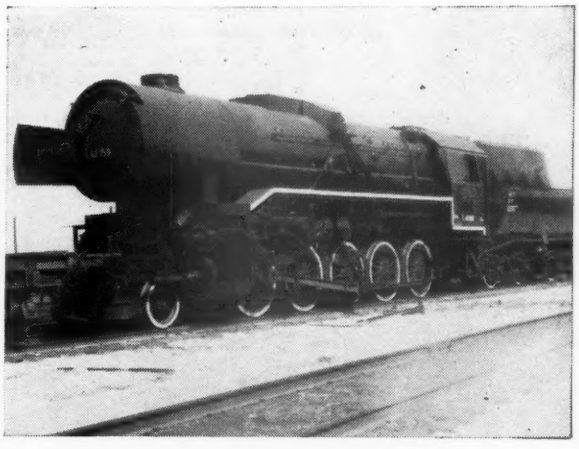
A piece of Florida has literally been transplanted to the fairgrounds by the *Chicago & Eastern Illinois* (7). A colonial mansion stands in a setting of living palms and orange trees and rare flowers. A replica of the Bok Singing Tower and sanctuary at Lake Wales, Fla., is reproduced in detail, complete to the vegetation surrounding it, and a concert featuring tunes descriptive of the Deep South is presented at 2 p.m. each day. A Florida beach adorned with beach umbrellas has been simulated along the lake. Southern belles sell orange juice at a juice bar. Inside the colonial mansion are 10 dioramas, lighted and in motion, depicting the history of the C.&E.I. Another diorama, built for the Stephen Foster Memorial Foundation under construction at White Springs, Fla., has been loaned by the state. It shows in motion and brilliant colors the steamboat "Swanee," cotton fields with the pickers at work, and slave cabins.

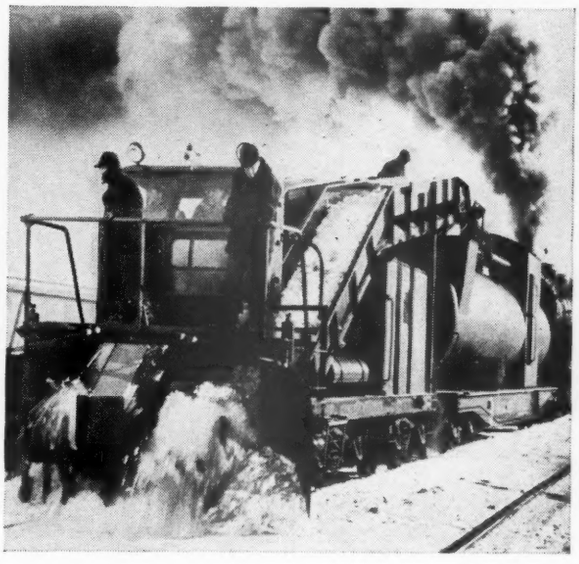
The *Grand Trunk Western* has a complete Barber-Greene snow loader and melter on display in the track area (22).

The general public—sometimes confused by the varying types of Pullman accommodations at its disposal—may gain enlightment at the exhibit of the *Pullman Company* (16). Extending down one side of a Quonset building are full-scale "mockups" of each of the seven types of travel accommodations contained in modern sleeping cars. Pullman conductors and porters explain the use and advantages of travel in the various classes of space. At one end of this exhibit is a display of Pullman linen, and a description of the material required to stock a car for a representative trip from Chicago to Los Angeles.

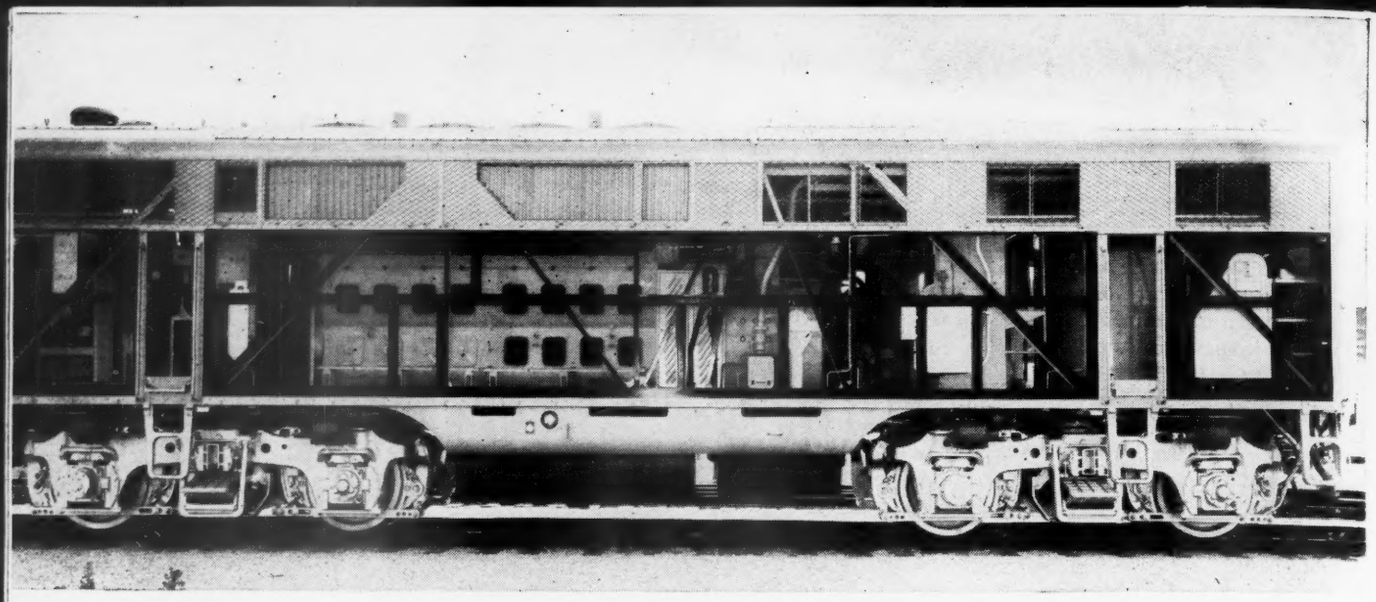
The *Railway Express Agency* exhibit (6) features the real bovine "Elsie," famed Borden cow, and her baby bull calf, "Beauregard." Elsie and her sibling are considered good representative customers because they have traveled nearly 60,000 mi., visiting 53 cities, by Railway Express.

The *U. S. Army Transportation Corps* has a captured German locomotive on the display tracks (22) along with a military transport car, a medical department kitchen car, a hospital unit car, and a machine-shop car. The hospital car serves as one of the Fair's first-aid stations, and is staffed with an officer and two enlisted men from the Medical Corps.





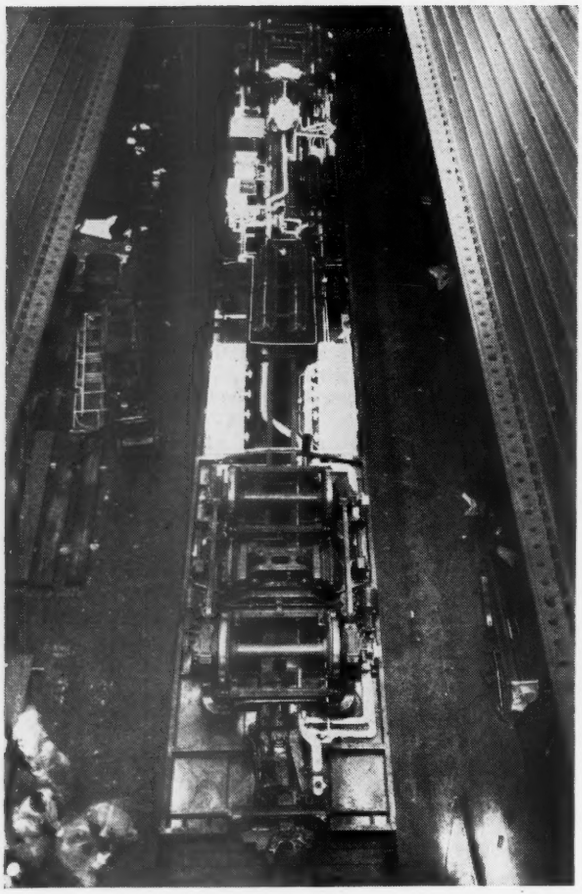
Above—No. L 42 159, a captured German locomotive, is exhibited by the Army Transportation Corps. Below—The Grand Trunk Western has on display a Barber-Greene snow removal unit of the type here shown at work on the road



This cut-away unit of a 1,500-hp. General Motors Diesel enables Fair visitors to trace the flow of power from the prime engine through the electric transmission to the traction motors, as well as supplementary operations

SUPPLIERS "SUPPORTING CAST" IN BIG RAILROAD SHOW

Total of 23 manufacturing organizations present individual exhibits of high entertainment value; round out railroads' story



An "upside-down" underframe of a modern sleeping car is exhibited by the Pullman-Standard Car Manufacturing Company so that visitors may, from a special ramp, gain an unusual view of the mechanism necessary to maintain a "home on wheels"

A carnival air prevails in the exhibits of 23 railroad supply companies and organizations not allied directly with the carriers at the Railroad Fair at Chicago. While the Fair is primarily a railroad-supported enterprise, these companies were invited to present supporting exhibits of a nature that would appeal to the public at large. Since many suppliers customarily advertise and show their products only to specialists in the field, participation in the Fair was for them a new and challenging experience.

Definite plans for the Fair emerged only a few months ago. The original plan presented to the suppliers contemplated individual exhibits in tents. Dissatisfied with this, certain companies attempted to push through a large joint exhibit in a building of the Quonset-hut type. This effort failed. There finally emerged a combination of individual-tent and "alumadome" (extra-size Quonset hut) exhibits and track displays. About half of the companies are exhibiting exclusively on the general track layout — (22) on the map of the fairgrounds appearing on earlier pages of this issue — where their showings are interspersed with the exhibits of the railroads. Most of the others occupy tents to the left, or north, of the main entrance — (6) on the map — identified as the area for railroad supply and service organizations. A few other companies have erected separate exhibits, housed in "alumadromes" or otherwise, located elsewhere on the Fair site, which are identified by individual key numbers on the map.

Although many important manufacturers are not participating, the list of exhibitors represents a reasonably broad coverage of railroad devices, as the following brief descriptions demonstrate.

The exhibit of *American Steel Foundries* presents

in a single 40-ft. mock-up box car the evolution of the railroad freight car. One half of the full-scale car body is typical of the car of 70 years ago — under which is an 1865 truck with wooden bolster and springplank, hewn timber brake beam, cast iron wheels and axles, and old-style brasses, wedges, boxes and sliding lids. The other half of the composite car is representative of modern equipment, with an A.S.F. "ride-control" truck, unit brake beams, and "E" coupler. Mirrors give visitors a clear view of truck details To give motion to the display a 34-ft.-segment is cut out of the side of the car exposing a three-dimensional diorama wherein two miniature trains — one a typical freight of the Eighties and the other a modern manifest — run amidst scenic effects and varied colored lighting.

Occupying a 22,500-sq. ft. site near the south entrance (21), the *Budd Company's* exhibit comprises a short piece of track for display of the "car of the week" and a striped tent wherein are demonstrated the research and engineering, testing, and finished product of the company by three-dimensional symbolic treatments, scale-models, dioramas and colored projections. Each "car of the week" will be a new passenger car just turned out by Budd's Red Lion plant in Philadelphia, Pa., which will sojourn at the Fair for seven days, after which it will be placed in service by the purchasing railroad. A two-way neon sign supported on a pylon faced with insignia of Budd's railroad customers designates the site.

An express refrigerator car of "jumbo" size destined for the Alaska railroad is exhibited by the *Chicago Freight Car & Parts Co.* on the track area (22). Converted from a troop kitchen car built during the war, the car contains photographs and other visual aids showing the public how railroad and supply companies are making use of surplus war equipment.

The *Crane Company* (6) is showing a number of actual installations of its products, including a complete display of plumbing for a typical shop and a men's wash room for a modern passenger car done in sun-tan shade. All piping on a steam-hauled and Diesel-driven streamliner, respectively, is analyzed visually for visitors by an artist's colored sketch on "translight" panels. Also, a colored photograph of a steam locomotive cab shows the location and function of all piping installed therein.

Electro-Motive Division, General Motors Corporation, is presenting at the track exhibit (22) four separate displays. The feature exhibit is a standard 1,500-hp. F3 Diesel locomotive with side panels, some machinery covers and doors eliminated, and certain parts of machinery housing cut away to show visitors how power flows from the Diesel prime mover to the

This 1898 box car is on exhibit by the Standard Railway Equipment Manufacturing Company. It is the 30-ton car, with an inside length of 34 ft., width of 8 ft. 9 in. and height of 6 ft. 11 in.

Pyle-National is exhibiting this pioneer electric headlight of 1897 (left) along with its latest models. At the Yale & Towne exhibit people may watch a fork-lift truck (right) "work" typical railroad stores material and freighthouse merchandise, on pallets, in and out of a "mockup" box car

driving axles. Also displayed is General Motors' "Train of Tomorrow." with Diesel-electric locomotive and four sample luxury cars featuring the dome principle. The company's mobile instruction car, an 84-ft. "school on rails," in which 51,000 railroaders have been taught the operation and maintenance of Diesel locomotives, will be open for interior inspection. Finally, a brand-new 6,000-hp. four-unit F3 locomotive will be on display. To avoid tieing up badly-needed motive power, locomotives for the Union Pacific, Santa Fe and Burlington roads (each of them an early and large user of G.M. power) will be exhibited in succession, after which each will be placed in service.

On the supply manufacturers' "midway" (6) the *General Electric Company* is presenting "Electricity in Railroading." Principally a photographic display, the exhibit is identified by a colorful marquee. Reproductions picture all types of Diesel-electric and straight electric locomotive units in service. Also, details of power supply and modification apparatus are depicted, including the amplidyne booster inverter and axle-driven motor generator set. Visitors will receive a 16-page cartoon booklet showing in popular style the development of electric traction, lighting, signaling, etc., in railroading, being the latest publication in a series entitled "Adventures in Electricity."

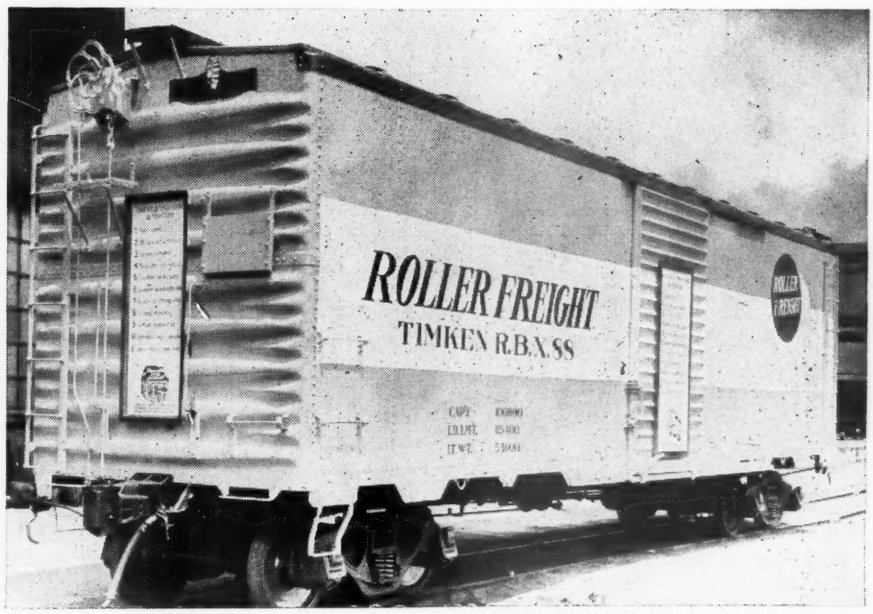
On the track exhibit space (22) the *General Steel Castings Corporation* displays the old and new in trucks. A truck equipped with combination wood and metal frame, bolster and springplank, with single shoe brakes and plain bearings, made available by the Chicago & North Western, embodies the typical passenger car truck of 1880. Alongside it is placed a modern truck with Commonwealth one-piece alloy steel castings, clasp brakes, roller bearings, bolster anchors and shock absorbers.

Directly at the main entrance (5), visitors find a fenced and gaily lighted area containing the joint exhibit of the *Heywood-Wakefield Company* and *Luminator, Inc.,* Centered therein is a large operating "merry-go-round" containing, instead of jogging horses, representative seats in a modern passenger car. A special booth distributes free souvenir tickets for the "ride." For contrast, an ancient railroad coach seat is shown in a small corner shelter. The merry-go-round is bedecked with flags, canopy and valance and is lighted by Luminator.

S. Karpen & Brothers (6) is showing a typical modern living room and a section of a railroad passenger car to demonstrate the sales value of well-designed furniture.

The entire fairground is the province of the *Mars Signal Light Company,* for, to the tops of 12 of the site's 45 ft. high masts for flood lighting, there are affixed and working the company's oscillating warning lights — six red and six white. All lights direct their beams above the line of vision of fair-goers and autoists on Lake Shore Drive. At the south entrance, Mars has erected a 55-ft. pylon with a white oscillating headlight at the bottom beaming up through the shaft. A Mars red signal light of the steam-locomotive type plays a beam on the plastic ball on top of the main pylon of the Eastern railroads' exhibit. Mars has also a tent exhibit between (8) and (9) containing both whole and cut-away samples of its products, with emblems of 45 user railroads as a background.

On a 2,500-sq. ft. triangular site near the heart of the grounds (23) the *Pullman-Standard Car Manufacturing Company* presents two complete inside exhibits and a special track display. One building houses an educational display on passenger equipment, with a "behind-the-scenes" story of the building of a sleeping car, models of the company's cars and numerous



A standard box car equipped with Timken bearings moves back and forth on a special track by means of an electric motor and cable car. Two scales show the public the amount of energy needed to move the car

photos of famed trains. A second building demonstrates the importance of the freight car in the life of the average American family. Herein also are contained working quarter-size models of Pullman's new power ballaster. On the exhibit track there has been placed, alongside an elevated ramp, the underframe of a sleeping car, with trucks and all appurtenances, in an "upside down" position, so that the public may see the variety of appliances which underlie a "home on wheels." One of Pullman's PS-1 box cars is also available for inspection.

In tent No. 1 the *Pyle-National Company* (6) presents the history of the locomotive headlight through a display of examples from the earliest oil-burner to a modern twin-sealed beam gyrating electric headlight and turbo-steam generator. Three-dimensional panoramas and photographs of historic trains round out the exhibit. Also is shown a working model of the company's multi-vent air distribution system for air conditioning passenger cars, with color transparancies to demonstrate its operation. The company's conical-motion Gyrating headlights of varying colors have been placed at the top of a number of the floodlighting masts distributed over the fairgrounds.

An aluminum box car manufactured by the Mount Vernon Car Manufacturing Company is the exhibit of the *Reynolds Metals Company* at the track area (22).

The *Standard Railway Equipment Manufacturing Company* is displaying two box cars at the general track exhibit (22) to demonstrate progress in rolling stock specialties. One is a 30-ton car built in 1898, with a cubic capacity of 1,897 ft. and inside dimensions of 34 ft. by 8 ft. 9 in. by 6 ft. 11 in., restored and painted by the C. & N. W. The other car is a modern 40-ft. 6 in. 50-ton unit. Emphasized by yellow paint thereon are some of the company's products, including the steel panel roof, metal floor protector, and coupler centering device and height adjuster. From the cars Standard is distributing a special six-page booklet, in color, discussing in popular terms the contribution of the railroads to the national economy.

At a special site midway in the Fair, (18), the *Timken Roller Bearing Company* has erected a 36-ft. by 60-ft. aluminum hut. In front a 60-ft.-high pylon carries the company's name. Inside is a three-quarter-size working model of a Timken-bearing-mounted steam locomotive. Around this focal point is a complete set of bearings as used on the Norfolk & Western's J-type steam locomotive. Outside the building, mounted on a special track, is a roller-bearing-equipped box car which is moved back and forth by a small electric motor and cable car. Two scales show visitors how much energy is required to move the car.

The *United Crane & Shovel Corporation* (6) is displaying its heavy-duty machinery. A large crawler crane with magnet attachment is in continuous operation handling steel scrap in and out of railroad cars.

At the track area (22) the *Unit Truck Corporation* is showing a 50-ton box car recently completed by the Burlington at its Havelock shops — the 100,000th car to be equipped with Unit trucks. The interior of the green-and-gold car shows typical merchandise lading stowed according to the latest approved methods. The company is also displaying a complete A-3 "ride-control" Unit truck.

The *Western Railroad Supply Company* has placed one of its Model 10 automatic crossing signals along the Deadwood Central narrow-gage (10) and another on the miniature railroad of the Union Pacific (25).

Willys-Overland dealers have supplied the Fair with 17 jeeps and attachments for moving freight cars, hosing down fires, digging ditches and boring post holes, among other operations.

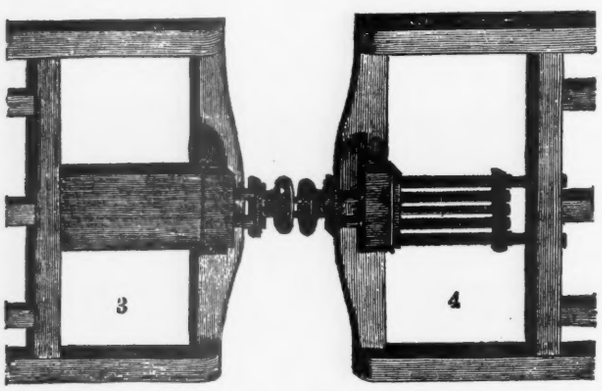
Occupying a 20-ft. by 60-ft. tent in the manufacturers' area (6), the *Yale & Towne Manufacturing Co.* has placed alongside the tent a "mockup" 40-ft. box car, one half of the side of the car facing the tent being cut away to show the interior. As visitors watch from within the tent, a Yale 2,000-lb. fork-lift truck with telescopic tilting fork, a motorized "worksaver" hand truck, a pallet-type motorized hand-truck, and a 6,000-lb. crane truck demonstrate the handling in and out of the car of typical railroad stores material and freighthouse merchandise, palletized. A dormant platform scale is installed to show the weight of the loads handled. Displayed in the tent are the company's series of hand and power hoists. Yale's motion picture, "On time," narrated by Lowell Thomas, is also shown.

RAILROAD HISTORY MEASURED BY CHANGES IN MANAGEMENT'S TOOLS

Widening of markets and traffic depended on cheapening and improvement of service made possible only by fundamental physical improvements—Supply industry responsible for most of the significant developments

For its first 20 years, common carrier railroading in America was carried on pretty much as a substitute for, or adjunct to, turnpikes, canals and tidewater shipping. Railroads charged tolls comparable with those of other agencies —usually just a bit less, to attract their business. Only a few courageous operators experimented with prices. But after 1850 there came the realization that the railroad was something distinct, with its own physical and economic laws.

Economist Arthur Hadley, for a time editor of the Railroad Gazette (predecessor of *Railway Age*) and later president of Yale University, in emphasizing this important turning-point in railroad management's attitude, pointed out that it led to three important changes in policy and accomplishment: (1) widespread consolidation because the railroad could not be confined to local business; (2) rapid extension into all kinds of territory — with or without business at hand, because capital and cheap materials were available; and (3) much more intensive traffic on whatever rails existed, partly because management encouraged business by revolutionary pricing policies and partly because engineering advances made possible great reductions in the expense of carriage.

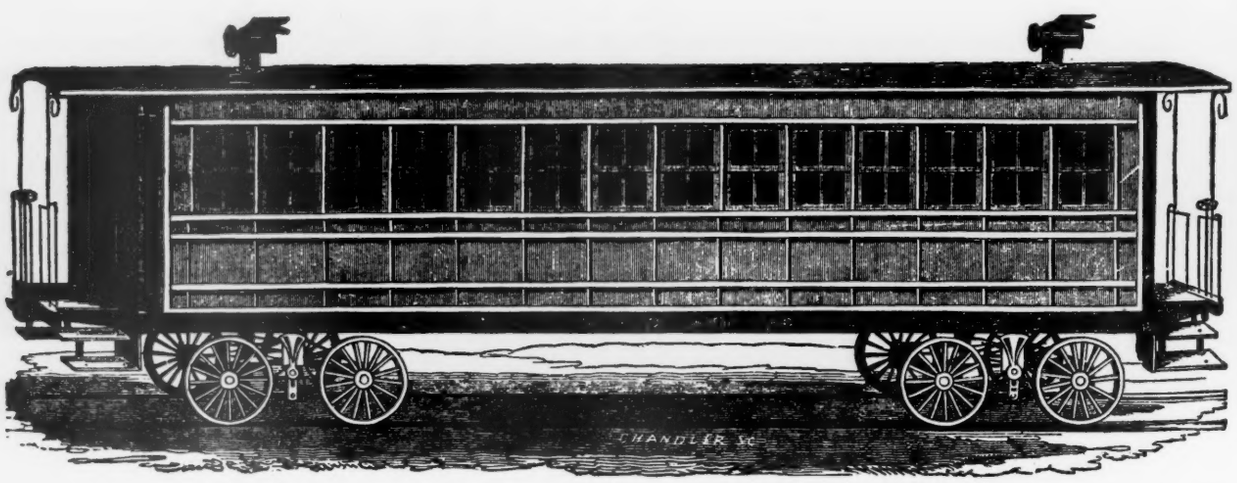


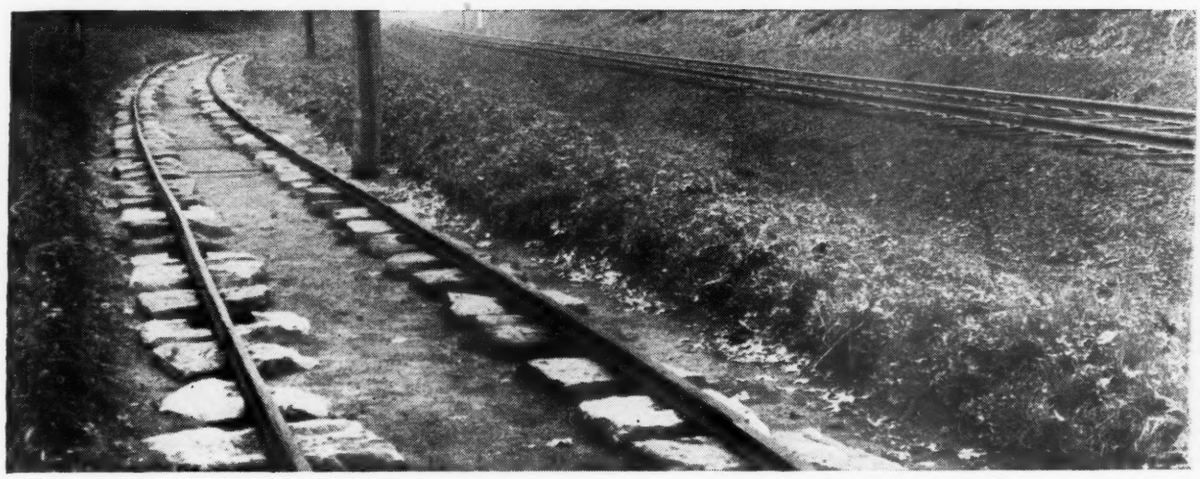
Above—Alverson's patented spiral-spring draft gear—1838. Below—A passenger coach with patented trucks advertised in 1846 by Davenport & Bridges, railway car builders of Cambridgeport, Mass.

The development of railroad traffic is, in reality, what the Railroad Fair at Chicago is about. A brief review, therefore, of the means by which this was accomplished belongs in this issue.

Developing Traffic

Railroad management discovered a pearl of great value when it learned that profits of a railroad depended quite as much on the volume of traffic on its rails as on the actual unit rate charged on its business. It is fair to say that railroads were the first business organizations in history to discover the principle of "low price, high volume." Once comprehended, this principle led the roads in this country to experiment widely with fares and rates, to an extent not





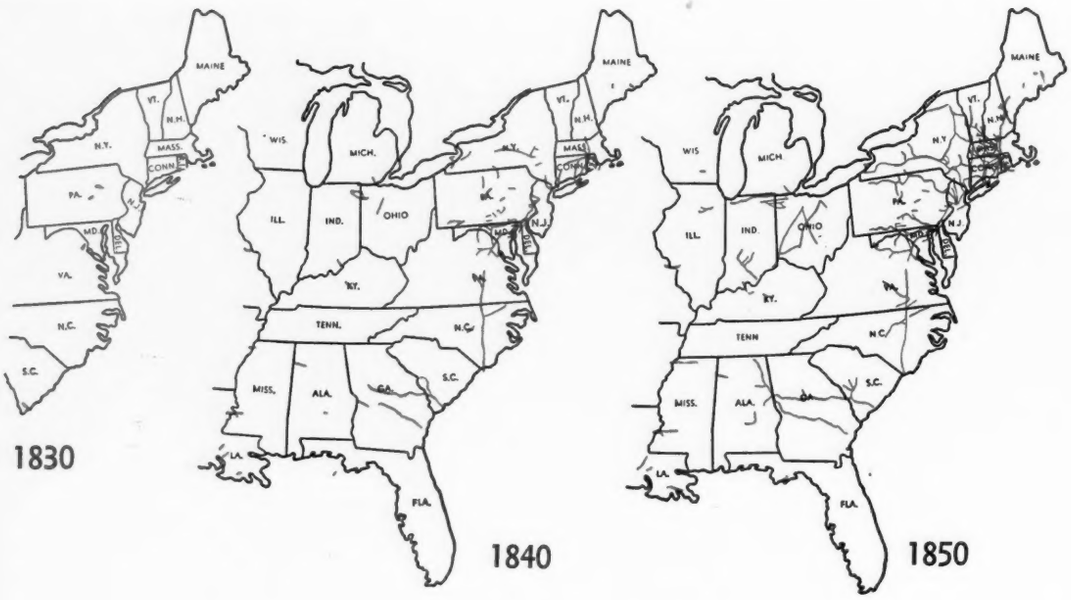
An example of the one of the earliest forms of track construction—iron rails on stone blocks. Built in 1831, this track, located near Jamesburg, N. J., is all that remains of the original track structure of the Camden & Amboy (now Pennsylvania)

matched anywhere else in the world. They encouraged long-hauls by a scale of rates diminishing as distance increased; they put in effect low commodity rates to encourage wide movement of low-valued goods; they encouraged ports; they spread and blanketed markets. As Dr. Hadley put it, "the system of making rates to develop business, or of 'charging what the traffic will bear,' rightly applied, has been the means — and we shall find it to be the only possible means — of securing efficient service and low rates."

The phenomenal growth of railroad traffic up to World War I was both intensive and extensive. The former was due to a rising standard of living and to rate policies which encouraged the movement of goods and persons. The latter was due to the rapid and constant construction of new lines. Many of the new routes opened up whole territories for white settlement for the first time. Others paralleled existing routes to compete for their business. Still others were intended as feeders to existing main stems.

The growth of the American railroad network over the last 118 years is depicted in a series of maps showing lines in service in significant years. Totals

Still in service carrying modern equipment is the Thomas viaduct completed by the Baltimore & Ohio in 1835. This view emphasizes the contrast between modern and primitive rolling stock



of route mileage by decades constitute a more complete picture of the extension of railroad facilities:

Year	Route Miles	Year	Route Miles
1830	23	1910	193,346
1840	2,818	1920	240,293
1850	9,021	1900	252,845
1860	30,626	1930	249,052
1870	52,922	1940	233,670
1880	93,296	1948	226,000 (est.)
1890	163,597		

It will be seen that the decade 1880-1890 saw the greatest amount of new mileage constructed — a total increase of 70,300 miles, or 7,030 miles a year, having been made in the network. After this, as Carlton J. Corliss of the Association of American Railroads has pointed out, new building continued through the 1890's, but with diminishing pace, up to 1916, when the railroad network reached its maximum of

WASHINGTON TERRITORY
MONTANA TERRITORY
DAKOTA TERRITORY
MINN.
MAINE
OREG.
IDAHO TERRITORY
WYOMING TERRITORY
WIS.
MICH.
N.Y.
IOWA
NEBR.
PA.
OHIO
NEV.
UTAH TERRITORY
COLO.
ILL.
IND.
W. VA.
VA.
CALIF.
KANS.
MO.
KY.
N.C.
TENN.
S.C.
ARIZONA TERRITORY
NEW MEXICO TERRITORY
UNORGANIZED
ARK.
MISS.
ALA.
GA.
TEX.
LA.
FLA.

1880

WASH.
MONT.
N. DAK.
MINN.
MAINE
OREG.
IDAHO
WIS.
MICH.
S. DAK.
WYO.
IOWA
NEBR.
PA.
OHIO
NEV.
UTAH
COLO.
ILL.
IND.
W. VA.
VA.
CALIF.
KANS.
MO.
KY.
N.C.
TENN.
S.C.
OKLA.
ARK.
ARIZ.
N. MEX.
MISS.
ALA.
GA.
TEX.
LA.
FLA.

1948

254,000 miles. Since that time retirements have exceeded new construction.

Engineering Progress

The other face of the coin of increased traffic is the engineering advances which made possible better transportation at cheaper prices. Between 1850 and 1880, for example, railroad freight rates were cut about one half, on the average, despite a general advance in wages and material prices. It has been the constant inflow of technological changes in the industry that has made possible the great traffic intensification achieved by the initial development of these new tools by the American railroads. For the initial development of these new tools, independent inventors and manufacturing concerns were principally responsible. To the railroads belongs the credit of applying the new tools with maximum effectiveness, in the face of the peculiar necessity for rail carriers to make important changes in standards uniformly over the country's network and without interruption of service.

Born with the Railroads

Since the beginning of American railroads they have never had enough capital beyond what they needed to expand or improve their roadway and equipment to lead them to establish plants for the production of their own facilities and supplies. Hence, the history of the railway supply industry began when the first mile of public-service railway was being built and equipped.

The search for sources of supply by the early railroad builders fired the imaginations of many men and offered them a promising new market. Matthias W. Baldwin was a jeweler who, in 1831, became a pioneer builder of railway locomotives. Thomas Rogers was the active partner of the firm of Rogers, Ketchum & Grosvenor, manufacturers of machinery for cotton and woolen mills, who was induced to supply springs and mounted wheels and axles to the Charleston & Hamburg Railroad. By 1836, his firm, too, was at work building a steam locomotive. Ross Winans, a New Jersey farmer who, in 1828, saw in the Baltimore & Ohio a new market for horses, reduced the friction of rolling stock to make practicable heavier horse-drawn loads by replacing the rotating wheels and stationary axles of highway vehicles with rotating axles having outside bearings and tightly mounted wheels. He introduced the four-wheel swivel truck on rolling stock and was well known among the pioneer locomotive builders. The growth of railway mileage kept these and many other early builders of cars and locomotives fully occupied. Thus began the equipment-building branch of the railway supply industry.

In 1838 tests were made on a double-acting spring draft gear by the Hartford & New Haven Railroad. This was patented by P. Alverson, a passenger-car builder employed by that road. It operated on the same double-acting principle of compression in both draft and buff which is now in universal use. Patents were taken out that same year on at least two forms of double-plate chilled-iron car wheels to replace the spoke type.

Several types of car trucks and many lesser devices were patented at about this time which have since passed into oblivion. But an industry, the units of which devoted their efforts to the manufacture and improvement of specialized parts of cars, was on its way.

During the 1840's many companies began to specialize in the sale to the railroads of such materials as crank axles and plain axles for locomotives, locomotive driving wheels, cast-iron car wheels with wrought-iron tires, chilled-iron car wheels, springs, journal boxes, bolts, boiler iron, and lap-welded wrought-iron tubes for locomotive boilers. Some of these companies were producers of the materials they sold; others were selling agents for the material manufacturers.

Among the "improvements" in cars which were made during the 1830's and 1840's, most were the inventions of men employed by the railroads. But, as was the case with Alverson of the Hartford & New Haven, the job of getting improvements in the crude rolling stock of the early days installed on all the railroads took more personal time and effort than a man in active railroad service could give. His announced intentions were "to visit the different roads in the United States with a sample of his improvement" (well fortified with affidavits testifying to the superior performance of his draft gear on the cars of his home road) and he hoped that "it will meet the approval of all concerned in railroads."

This is suggestive of a pattern which, with variations, has been repeated many times with respect to useful inventions made by railroad men.

Evolution of Comfort

In 1852 a patent was granted to W. L. Boss for a reclining car seat which provided a support for the feet and legs of its occupants when the back was in the reclining position. One of the curious anticipations of developments which are considered of relatively recent origin, of which railroad history presents several, was Ruttan's system of heating and ventilating which was in trial service on several railroads in 1856 and 1857. Air forced into the car by the motion of the train was heated, during the winter, by a hot-air furnace and entered the car body near the top. During the winter the ventilator hoods were changed and the direction of air flow reversed. The air passed through shallow reservoirs of water underneath the floor to remove dust before entering the car. The trials were reported to have been attended by some but not complete success.

Sleeping-car service of a sort is said to have been inaugurated as early as 1836. But not until George M. Pullman, in 1858, took up as a life-long objective the comfort of over-night railway passengers was distance removed as a barrier to railway travel.

Thirty years later Pullman's company incorporated narrow vestibules in a new train for service between New York and Chicago. After a few more years the wide vestibule was coming into use. Thus began a specialized development which not only dealt with the physical aspects of travel comfort, but took over and established high standards of personal service to the patrons. To this organization also goes the credit for inaugurating dining-car service.

Two other features of the evolution of passenger cars which have contributed both to increased safety

and comfort are train heating and train lighting.

The evolution of train heating was from unprotected stoves in the ends of passenger cars; to heaters underneath the cars, which improved the distribution of heat but did not remove the horror of fire in case of wreck; to steam from the locomotive; to the Baker heater, with its fire-tight combustion chamber and metal-lined compartment, and finally to the low-pressure steam system now in general use. The swing away from stoves began in the 1880's. By the end of that decade steam was already in extensive use. The evolution and improvement of the low-pressure heating system has been the continuing task of a specialized branch of the railway supply industry.

The more recent addition of air conditioning as a means of improving hot-weather travel comfort, quite independent of heating at the outset, is becoming a part of a complete comfort service embracing ventilation, heating, cooling, and dehumidification, all of which are under coordinated controls.

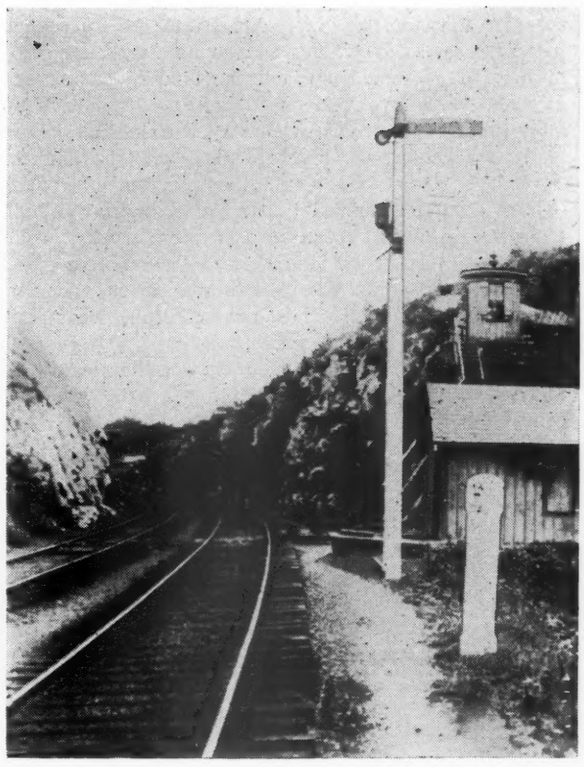
Passenger-car lighting has passed through a somewhat analogous course of changes. The supremacy of oil lamps was challenged by Pintsch gas lighting. Supplying the gas and servicing the system were performed outside of the railroad industry. This system came into use in the 1880's. Electric lighting was first employed in eight parlor cars on the Pennsylvania in 1885, power being furnished by storage batteries. Between 1885 and 1890 the Pennsylvania, the Chicago, Milwaukee & St. Paul, and the Baltimore & Ohio inaugurated electric lighting on some of their trains using head-end steam-engine-generator sets as a source of power.

Improvements in incandescent electric lamps by 1900 made wide application of electric lighting practicable. Recently the advent of fluorescent lamps has further increased the amount of lighting from a given power supply. Electrical equipment, including lighting, air conditioning, heating and cooling controls, water cooling, refrigeration, and a multiplicity of devices which promote passenger comfort, are now considered essential parts of a passenger car. The manufacturers were at one time permitted to apply an electric power system to a car if it could not interfere with the operation of the car. Now no first-class passenger service can be performed without it.

The 1880's are also famous for two developments which were directed toward increasing safety of train operation but which also removed barriers to the continuing growth in train loads and speeds. Not only do they introduce a new element in the relationship between the railways and the suppliers because of the need for interchange of rolling stock, but they mark the beginning of serious public interest in the safety of railway operation.

By 1884 the appalling number of deaths and injuries to trainmen resulting from accidents in coupling cars became a subject of concern to Congress. Public trials of automatic freight-car couplers sponsored by the Master Car Builders' Association led to the adoption of the Janney type coupler in 1887. Its modification to meet the needs for increasing strength and reliability has been the joint task of an association of coupler manufacturers and the Mechanical Division of the Association of American Railroads.

George Westinghouse's invention of the air brake—straight air in 1869 and the automatic brake in 1872—is the subject of an often-told but fascinating story. Significant for this review is the fact that no serious consideration was given to its use in freight service until 1887. Requisites set up by the M.C.B. ruled out the air brake, but the Burlington brake tests in 1886 and 1887, sponsored by that organization, demonstrated that these requisites were impracticable. From then on the prestige of the air brake steadily increased. The first Safety Appliance Act, adopted by Congress in 1893, made unlawful after January 1, 1898, the operation of trains which could not be controlled by the engineman using the air brake. It also outlawed the old link-and-pin coupler at the same time.



An early electric automatic semaphore signal placed in service in May, 1893, on the Central of New Jersey, in Black Danscut, near Phillipsburg, N. J.

Modification of air brakes to keep them abreast of growing train lengths and speeds has been the work of the manufacturers, in which a tremendous amount of invention and engineering development have entered. Always in the background — sometimes in the foreground — has been the government concern for safety. The railways, collectively, were also a party to the development of the AB brake because of the necessity that the modified brake not only perform its new functions properly, but that it operate smoothly with earlier models.

Motive Power

Steam locomotives were largely the product of the builders for more than 60 years. Of course, there were exceptions — notably the injector, which was being applied on American locomotives by 1861, and the

cylinder lubricators, which came into use subsequent to 1880, and safety valves and steam gages. But most of the factors which characterize modern steam locomotives were developed or adapted to locomotive use after 1900. These are the firebrick arch, the superheater, feedwater heater, the mechanical stoker, the Thermic Syphon, power reverse gear, guides for cut-off control, patented valve gears, the articulated main rod, controlled-resistance engine and trailer trucks, roller bearings, cast-steel tender and locomotive beds, grates, low-water alarms, chassis lubrication, and many highly developed materials for strength, wear-resistance and reduction of friction.

These are among the components of the steam locomotive which, since the beginning of the twentieth century, have been invented, engineered, and marketed to the railroads by an important sector of the railway supply industry. Many more of these devices and materials originated outside than inside of railway organizations. The present state of most of them has been attained after extensive engineering development. The great increase in steam locomotive capacity and economy since 1900 is largely attributable to them.

The creation of Diesel-electric motive power and the rate at which it has gone into use are the work of industries building the locomotive and its major components. An outstanding element of the success with which the use of these locomotives has been increased is the employment of production methods adapted from the automotive industry. This product is *sold* to the railways; they have generally *bought* steam locomotives.

Materials

Progress in the technical developments of railway motive power and rolling stock has reflected every important improvement in materials. The availability of structural grades of carbon steel in large quantities paralleled the adoption of steel as the material for freight and passenger-car construction. New materials —alloy and stainless steels and aluminum—have recently made places for themselves as structural material. These are examples of the contributions which are made to railroad development by advances in the art in industries of which the railways form only a part of the market.

Such are the parallel and closely related courses of the railroads and the industries to which they have looked for the equipment and materials required to build and maintain them during considerably more than a century. The specialization of the supplying industries has expedited technical advancements; intensive merchandizing methods have expedited the rapid translation of ideas on paper into widely applied instruments of improved service to the public. Both functions of the various branches of the industry have played an important part in keeping railway development abreast of the intensive industrial development for which America is famous.

Fixed Plant Progress

The increased weights and speeds of railroad trains, along with greater safety and comfort for passengers, would not have been possible without the remarkable progress that has taken place in the design, construction and maintenance of the tracks, bridges and other elements of the fixed part of the railroad plant. The character of this progress, especially with respect to the tracks, may be divided into two categories: (1) The early groping for a basic structure that would satisfy the requirements of this new form of transportation; and (2) the later refinement of the basic structure to produce the railroad plant in its present advanced form.

For the most part the record of progress is characterized by a steady forward trend, but here and there it is marked by sudden spurts, or milestones, representing developments of such outstanding importance that, together, they may be said to constitute a sort of foundation for the fixed plant as it exists today.

About the only point of similarity between modern heavy-duty track in this country and its counterpart of the earliest days of railroading is the gage. In the first track the rails consisted of timber stringers, protected on top with flat strips of iron and laid on stone blocks. This construction proving unsatisfactory, the search immediately began for something better, tending gradually toward the use of iron rails laid on timbers placed crosswise of the track. These first rails assumed various shapes, but it was not until Stevens whittled out his T-rail section in 1830 that a shape was developed that appeared to have the peculiar structural properties required. Although Stevens' rail section did not immediately gain wide acceptance — many roads continued to use various earlier shapes — its development is now held to be the first major milestone in the evolution of the track structure.

The first T-rails were of iron rolled in England, but the growing demand in this country quickly forced the development of domestic manufacturing facilities. However, evidence was not long in forthcoming that iron rails were unequal to the task of carrying the heavier motive power that was coming into use. Wear was rapid and failure through breakage was frequent. When steel became available in sufficient quantity, at a reasonable price, its superiority for rails was immediately apparent. As with iron, the first steel rails were rolled in England, but on May 25, 1865, in a mill at Chicago, the first steel rail was rolled in this country — marking the second great milestone in the progress of the fixed properties.

Wood Preservation

By this time the first broad phase of track development—the search for the basic structure—was at an end. Since then progress has been mainly in the direction of refining, improving and strengthening this structure. Out of this effort have evolved the heavy rail sections, the efficient fastenings, the treated crossties, and the ample ballast sections that are commonplace today. Along with improvement of the track itself there has been a marked tendency in recent years to make railway lines straighter and more level, by reducing grades and curves, and this trend may be expected to continue indefinitely.

There is one other development related to track that warrants mention here — the advent and universal adoption of means of preserving crossties against decay. The tremendous expansion of the railroad network, coupled with the short service life of untreated wood

ties (five to ten years) due to decay, created a great demand for timber crossties for new construction and renewals. Not only did the growing cost of crossties provoke a need for improvement, but possible exhaustion of the country's timber resources caused concern. The result was search for means of preventing decay.

Zinc chloride was probably the first material used widely for this purpose, it having come into rather extensive use on some roads as early as 1885. Somewhat later, about 1900, the possibilities of treatment with creosote, applied to the ties under pressure, began to attract attention. This method proved so effective that its use expanded rapidly, until today nearly all new crossties are treated with creosote, frequently mixed with varying percentage of petroleum or coal tar. By this process the service life of crossties has been raised to as much as 25 to 30 years. Because ot the important benefits it has brought to the railroads, the preservative treatment of crossties ranks as one of the more important milestones in their development.

Since bridge design is largely a matter of applying known engineering principles the early railroads were not faced with the same problem in building structures to span streams and valleys as they were in evolving a suitable track structure. With iron, wood and stone as the principal materials of construction the first railroad engineers proved exceedingly versatile in designing structures to meet the needs of particular locations. Their iron spans, consisting largely of pin-connected trusses, appeared in the form of simple spans, arches, vertical lift spans, suspension bridges, and cantilever spans, as dictated by conditions. In those days stone masonry bridges of the multiple-arch type were a popular form of construction, and a number of such structures, which have stood for 100 years or more, are still in service, carrying modern power. Since iron proved no more successful as a structural material for bridges than it had for rails, the railroads were constantly on the alert for a better material. and when improvements in steel in the 1870's rendered it suitable for bridge construction they immediately became interested. Symbolizing another milestone in railroad progress, the first steel bridge was built in 1879, and thereafter this material rapidly supplanted iron in railroad bridge construction. Subsequently there have been many improvements and refinements in bridge design to produce the structures necessary to carry modern power at high speeds. The introduction of rolled steel shapes also had an influence on bridge design, by making possible, for example, the use of plate-girder bridges where truss spans had previously been necessary. Also, concrete has largely supplanted stone masonry for bridge substructures.

A development that has taken place over a long period of time, starting about the turn of the century, the progressive mechanization of railway maintenance work, ranks as a major milestone in carrier history. In the beginning the use of power machines in this work was limited to those that could be driven by steam, such as pile-drivers, ditchers and shovels. Mechanization as it is known today had its beginnings in the application of the internal combustion engine to the section hand car, producing the forerunner of the modern motor car. But it was not until after World War I that railroad maintenance men began to visualize the great benefits that would flow from the application of power-driven machines and tools to *all* types of maintenance work. Since then, progress in this direction has outstripped even the most optimistic expectations of earlier years.

To these fundamental forces in the development of the fixed properties there must be added at least a mention of such significant developments as the evolution of freight yards and terminals, changes in the architecture of passenger stations, large and small; the introduction of methods of treating water to prevent corrosion and scale in locomotive boilers and tubes; the solution of the transverse-fissure problem by subjecting newly rolled rails to the controlled-cooling process; the newer developments in roadbed stabilization, including pressure grouting; and the development of continuous welded rail.

Signals and Communications

Outstanding in the growth and progress of the nation's railroads, too, have been signaling and communications facilities. Automatic block signals, interlocking, train control, cab signals, car retarders, centralized traffic control, telegraph, telephone, radio and radar — all have contributed substantially to improved railway service and increased safety and operating efficiency.

The automatic block system was first developed in America when in 1867, Thomas S. Hall instituted his "banjo" signals on the New York, New Haven & Hartford. The track circuit — most vital part of a signal system to this day — was first installed in 1872 by Dr. William Robinson on the Philadelphia & Erie (now part of the Pennsylvania) in connection with an installation of automatic signals near Kinzua, Pa.

The first American interlocking machine in this country was installed in 1874 at Spuyten Duyvil, near New York, on the New York Central. The first installation of an interlocking machine fitted with "latch" locking was made in 1875 at East Newark Jct., N. J., on the United Railroads of New Jersey (now part of the Pennsylvania). The latter was a Saxby & Farmer mechanical-type machine made in England. The development and installation of electro-mechanical, pneumatic, hydraulic, electro-pneumatic, electric, all-relay and route-type interlockings followed in succeeding years.

The first color-light signals to be adopted for outdoor use on steam railroads are said to have been placed in service in the New York passenger terminal of the Pennsylvania in 1910. The position-light signal was developed and first installed on the same road near Philadelphia in 1915. The Baltimore & Ohio developed the color-position light signal, the first of which was placed in service near Baltimore, Md., in 1921. These various types of signals have replaced the semaphore and other types of signals to a large extent during recent years.

In 1922 the Interstate Commerce Commission issued orders requiring 49 railroads to make extensive installations of train control devices, numerous systems, of which had been in development for several

(*Continued on page* 98)

RAILROAD FIXED CHARGES DOWN 26.5 PER CENT IN 5 YEARS

Cut of 15.6 per cent in long-term debt effected, largely by reorganizations, despite 40.1 per cent rise in equipment obligations outstanding

Railroad reorganizations between 1944 and 1947 had an "important effect" on the "large reduction" in the total long-term debt of Class I roads in 1947, as compared with 1946 and 1943, according to the latest "Monthly Comment" of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The total long-term debt at the end of 1947 amounted to $8,831.8 million, as compared with $9,093.3 million in 1946 and $10,462.8 million in 1943, the decrease from 1943 being 15.6 per cent.

The bureau observed that while unmatured funded debt declined from $8,378.2 million in 1943 to $6,914.9 million in 1947, debt in default dropped from $757.8 million to $336.3 million. At the same time, it noted that decreases in the various forms of debt between 1943 and 1947 were partly offset by an increase of $310.6 million, or 40.1 per cent, in equipment obligations, and that the amount of capital stock outstanding declined 0.3 per cent between the same two periods.

Quick Assets Down

Annual interest accruals on all classes of long-term debt combined, the bureau continued, declined from $443.4 million in 1943 to $325.9 million in 1947, or 1.7 times the corresponding percentage reduction in long-term debt. "More sigificance, however, attaches to reduction in interest charges than to reductions in debt, because, other things being equal, the former always lowers the fixed charge burden and thus increases net income," the bureau stated. "Whether debt reduction reduces this burden or not depends not only on the amount of debt outstanding as between any two years, but also upon the rates of interest being paid in the same years. The decrease in interest charges since 1943 may be attributed not only to the large absolute reductions of debt but also to generally lower interest rates on reorganization debt as well as on refunding and other obligations issued, including equipments."

Another article in the "Comment" presents figures showing that the "quick assets" — cash and temporary cash investments — of the Class I roads declined from $1,959.8 million as of April 30, 1947, to $1,719.8 million in 1948. The largest decrease, $174.8 million, occurred in the Western district, while the smallest, $2.8 million, was credited to the Eastern district roads. "Debt maturities liquidated in the latter half of 1947 had considerable effect is reducing the 'quick asset' position in the Western district," the bureau said, adding that on April 30 in both 1947 and 1948 quick assets exceeded current liabilities in the Southern region and Western district despite the fact that the "percentages of coverage" were smaller in the latter year. "However, in the Eastern district and Pocahontas region on both dates such assets were not sufficient to cover current liabilities."

The bureau also noted that the net corporate working capital of the Class I roads dropped from $1,875.3 million on April 30, 1947, to $1,511.9 million on the same 1948 date. The Pocahontas region showed the largest percentage decrease — 29.2 per cent — and the Eastern district the smallest, 12.2 per cent. It added, however, that if materials and supplies are excluded from net working capital, the percentages of decline are much larger, ranging from 22 per cent in the Southern region to 87.3 per cent in the Pocahontas region.

Another section of the "Comment" reports that the Class I roads in 1947 charged $121.7 million to operating expenses for "loss and damage" to freight, the largest amount so charged in the history of the nation's railroads. Such charges, it was noted, increased "sharply" after 1941, with the 1947 charges exceeding those recorded during the war years, when the volume of freight traffic as measured in revenue ton-miles was "much greater" than last year. Loss and damage charges in 1947, according to the bureau, exceeded those of 1939 by 488 per cent as compared with an increase of 96 per cent in ton-miles, while the amount of loss and damage per million ton-miles rose from $62 in 1939 to $186 in 1947, or 200 per cent.

Loss and Damage Index

"With the year 1939 taken as a base, the annual increase in the index of the amount of freight loss and damage from 1939 through 1942 was not as great as the annual increase in the index of traffic volume," the bureau said. "Very largely as the result of rapidly rising material and labor costs, this situation was sharply reversed with 1943. In order to make a rough adjustment of the loss and damage figures for increased costs, the amounts of such charges for the years 1940-1947 have been deflated to a 1939 base by the use of the wholesale price index of the Bureau of Labor Statistics. . . . On this basis, the amount of loss and damage in 1947 was 199 per cent above that of 1939, as compared with the increase of 96 per cent in ton-miles. Per million ton-miles, the freight loss and damage on the basic of 1939 prices increased from $62 in 1939 to $94 in 1947, or 52 per cent."

With respect to the revenues and expenses of the Class I roads for May, the bureau reported that (1) total operating revenues amounted to $796,402,811, or 12.9 per cent above May, 1947, and 8.7 per cent above April, 1948, while for the 12-month period ended with May, the revenues increased $878 million over the comparable 1947 period and $1,010 million over the comparable 1946 period; (2) freight revenues on a 30-day month basis were 16.5 per cent above May, 1947, and 10.9 per cent above April, 1948; (3) passenger revenues were 7.2 per cent below May, 1947, and .05 per cent below April; (4) operating expenses amounted to $616,231,264, or 10.5 per cent more than for May, 1947; (5) net railway operating income totaled $90,178,066, or $13.4 million more than in May, 1947, and $37.1 million more than in April; and (6) the net income for the 12-months' period ended with May was $759,530,000, before deduction of federal income taxes, and $463,509,000 after taxes. The latter figure compares with $507,950,000 for the 12 months ended with May, 1947.

It also was reported that tons of revenue freight carried in April decreased 10.1 per cent from the April, 1947, level, and that ton-miles decreased 7.6 per cent.

There was an increase in the average haul per ton per road from 223.8 miles in April, 1947, to 230 miles in April, 1948, while the number of passengers carried in April decreased 10.9 per cent from the April, 1947, level.

Passenger Revenues Up

The "Comment" went on to point out that the volume of freight traffic during the first four months of 1948, as measured in revenue ton-miles, was 5.2 per cent below the 1947 level, but that freight revenue was 9.9 per cent above 1947, primarily as the result of freight rate increases authorized by the commission.

With the exception of the Pocahontas region, in which freight revenue dropped 1 per cent, all other territories showed "substantial increases," the bureau said, ranging from 9.7 per cent in the Eastern district to 11.8 per cent in the Western district.

It also reported that passenger-miles during the first four months of 1948 declined about 10 per cent below the same 1947 period, ranging from 8.6 per cent in the Eastern district to 11.7 per cent in the Western district. However, passenger revenues went up 0.6 per cent, being accounted for entirely by an increase of 3.4 per cent in the Eastern district. In the Western district, the decline in passenger revenue was 0.7 per cent. In the south and Pocahontas region the decreases in passenger revenues were about one-half as great percentagewise as the decreases in revenue passenger-miles.

Data prepared from the 1 per cent sample of waybills, covering terminations of carload freight on Class I roads during the third quarter of 1947, also is discussed in the "Comment." Among other things, the bureau found that (1) about 89 per cent of the tons of carload freight which originated in the United States in that period were consigned to points within the same rate territory as the points of origin; (2) the commodity group, animals and products, showed the smallest intraterritorial movement, 61 per cent, as compared with almost 95 per cent in the case of products of mines; (3) the Official and Western Trunk-line territories show "considerably higher" percentages of intraterritorial traffic than do Southern, Southwestern and Mountain-Pacific territories; (4) the average short-line haul per ton for the five major commodity groups and movements covered was 325 miles, while for all railroads and all revenue freight, including l.c.l. and traffic which originated or terminated in Canada or Mexico, the actual average haul is estimated to have been 386 miles; and (5) the shortest average haul is 173 miles on commodities moving within Western trunk-line territory, a figure weighted heavily by the short haul of iron ore from the upper lake ranges to upper lake ports for transshipment by vessel.

"GREATEST RAILROAD SHOW"

(Continued from page 78)

Burlington's "Pioneer Zephyr" from Denver, Colo., to Chicago non-stop in 16 hours in 1934.

An official song, entitled "Wheels-A-Rolling," was especially written for the pageant. Music is furnished by a 13-piece orchestra under the direction of Isaac Van Grove, former director of the Chicago Civic Opera Company. In addition, a male quartet and contralto soloist are featured at each performance. Songs heard in the show include those of early America, the "Gay Nineties," Stephen Foster ballads, cowboy pieces, spirituals and patriotic numbers.

As a finale to the stage presentation, a modern Diesel-electric and steam locomotive approach each other slowly from opposite sides of the stage and meet in the center. The locomotives for this scene are loaned to the Fair by different railroads and will be changed frequently. The author of the pageant scrip is Edward Hungerford, well-known railroad writer; Mrs. Helen Tieken Geraghty is the director.

The "Deadwood Central" line extends the entire length of the Fair grounds. Its equipment is furnished by the Burlington Lines but is operated by the Fair management, and includes locomotive No. 9—"Chief Crazy Horse"—three open-top observation coaches, a combination baggage car and railway postoffice, a coach with red plush upholstery and a special car designed for visiting dignitaries. The cars have been named for famous western characters such a Calamity Jane, Sitting Bull, Deadwood Dick and Buffalo Bill.

The train travels at 10 to 12 m.p.h. and has capacity for 200 persons on each trip. Acting as general manager of the small line is John S. Ford, retired engineer of the Burlington, who was at the controls of the road's "Pioneer Zephyr" on its dawn-to-dusk run from Denver to Chicago in 1934.

Two old-time stations—"Deadwood" on the north end of the grounds and "Central City" on the south end—are equipped with chattering telegraphic instruments, large round "high balls" and other old-style de-

vices for running a railroad. The latter station is also the official postoffice, where all mail posted on the grounds acquires a Railroad Fair cancellation.

Several different types of Fair tickets are for sale. A special souvenir-type booklet containing four tickets is priced at $1. A second type of souvenir booklet, of the commutation wide variety, sells for $1 also and contains two general admissions and tickets for eight rides on the "Deadwood Central" line. Season tickets can be bought for $5 each.

Officers and Directors

The officers of the Fair are: *President,* Major L. R. Lohr, president of the Chicago Museum of Science & Industry; *vice-president,* R. L. Williams, president of the Chicago & North Western; *treasurer,* Wayne A Johnston, president of the Illinois Central; and *secretary,* G. Murray Campbell, vice-president of the Baltimore & Ohio. In addition to the aforementioned officers, the following railroad presidents are directors of the Fair: *Ralph Budd,* Burlington Lines, *F. G. Gurley,* Atchison, Topeka & Santa Fe; *C. H. Buford,* Chicago, Milwaukee, St. Paul & Pacific; *J. D. Farrington,* Chicago, Rock Island & Pacific; *E. S. French,* Boston & Maine; *G. F. Ashby,* Union Pacific; *R. J. Bowman,* Chesapeake & Ohio; *T. D. Beven,* Elgin, Joliet & Eastern; *John M. Budd,* Chicago & Eastern Illinois; *H. W. Burtness,* Chicago Great Western; *Wilson McCarthy,* Denver & Rio Grande Western; *C. R. Harding,* Pullman Company; *A. K. Atkinson,* Wabash; *F. L. Schrader,* Chicago & Illinois Midland; *John W. Barriger,* Chicago, Indianapolis & Louisville; *J. W. Davin,* New York, Chicago & St. Louis; *Charles J. Graham,* Pittsburgh & West Virginia; *D. L. Keiser,* Texas-Mexican; *H. E. McGee,* Green Bay & Western; *P. H. Van Hoven,* Duluth, Missabe & Iron Range; and *R. E. Woodruff,* Erie.

Other directors include *J. L. McKee,* vice-president, New York Central; *P. E. Feucht,* vice-president, Pennsylvania; *S. A. Dobbs,* vice-president, Gulf, Mobile & Ohio; *Ward Wire,* vice-president, Colorado & Wyoming; *C. A. Skog,* vice-president and general manager, Grand Trunk, Western; and *A. Syversin,* vice-president, Lake Superior & Ishpeming.

RAILROAD HISTORY

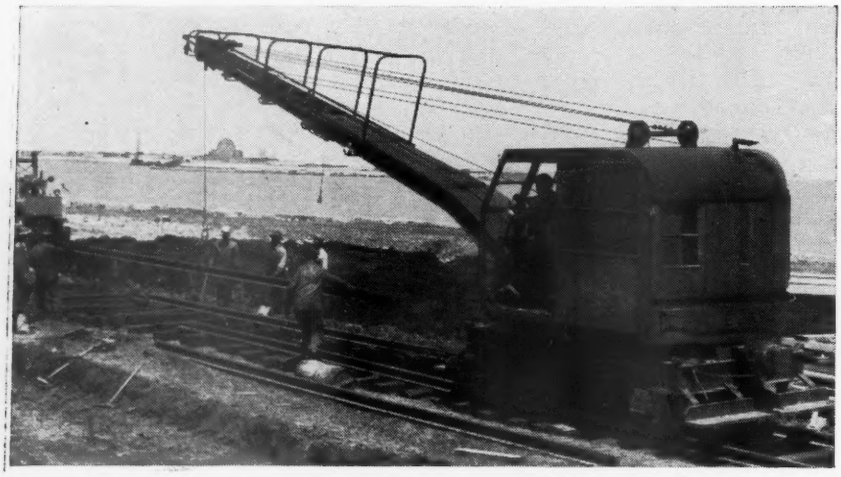
(*Continued from page* 95)

years. Developed as an accessory to the continuous train control sytem was the continuously controlled cab signal system, the first installation of which was made on the Lewiston (Pa.) branch of the Pennsylvania in 1913.

Operation of trains by signal indication goes back many years, and involves several roads. The first true centralized traffic control installation, involving one control machine for the entire territory, was made July 25, 1927, on 37 mi. of single track and 3 mi. of double track of the New York Central between Stanley, Ohio, and Berwick.

Coded track circuits for the control of wayside signals without line wires were first installed on the Pennsylvania near Philadelphia in 1932. This type of circuit has been further developed to operate in either direction. Other developments include coded line control and use of carrier frequencies on control lines for C.T.C. installations.

Train orders were first dispatched by telegraph in 1851, and the telephone was first used for the dispatching of trains about 1870, on the Cumberland Valley (now part of the Pennsylvania). Modern communications developments which followed include the printing telegraph, use of carrier for the simultaneous transmission of many messages between distant points, and radio and inductive systems for communications between the front and rear ends of reight trains, and between trains and wayside offices. Adoption of radio communication facilities and other electronics devices has been particularly pronounced following World War II.



Laying some of the four miles of tracks built specially for the Railroad Fair at Chicago. The Burro crane shown, which was borrowed from the Chicago Terminal division of the Illinois Central, is equipped with boom guards for use in electrified territory with overhead catenary construction

GENERAL NEWS

Clark Opposes Probe of Army Traffic Men

Also refuses to give House group 1945 report of anti-trust division

Attorney General Tom C. Clark has advised Representative Bender, Republican of Ohio, chairman of a subcommittee of the House committee on expenditures in the executive departments which is investigating railroad freight rates paid by the government during World War II, that "until facts which justify a criminal investigation are found to exist," it would be "improper" for him to order a probe by the Federal Bureau of Investigation into the wartime activities of Army traffic officers and other government personnel who negotiated freight rates with the railroads.

Mr. Clark also has informed Representative Bender that the Department of Justice cannot make available to the subcommittee a "confidential" report prepared in 1945 by the anti-trust division. That report according to Representative Bender, contained a recommendation urging the F.B.I. investigation.

The request of the subcommittee chairman was the outgrowth of hearings held July 7 and 8 in Washington, D. C., at which time, as reported in *Railway Age* of July 17, page 45, it was testified, among other things, that 1945 investigations by the anti-trust division into the wartime railroad freight rates paid by the government and by the F.B.I. into the activities of Army traffic personnel were dropped because Francis Biddle, attorney general at the time, desired to handle the cases "personally."

"I am writing to take issue with you concerning statements attributed to you . . . with reference to this subcommittee's inquiry into freight rates charged, or more correctly overcharged, by the railroads," Representative Bender said in a letter of July 14 to the attorney general. "You are reported . . . as having said that the Justice Department could act in the case of Army transportation officers who set exorbitant wartime freight rates for the government only if the . . . subcommittee could furnish facts to substantiate charges of misconduct or fraud on the part of such offenders.

"I should like to point out that the testimony before my subcommittee shows that facts were in possession of your anti-trust division as early as 1945 and these facts were the basis of a report by that division recommending an investigation of Army traffic personnel. Knowledge of the matter was only recently brought to the attention of the subcommittee by former and present employees of your department, including your special assistant and chief of the transportation unit of the anti-trust division, Mr. James E. Kilday. In answer to a question from the subcommittee counsel . . . Mr. Kilday confirmed the fact that suspicion of the activities of Army traffic personnel had led to an inquiry by the anti-trust division during the war, culminating in a report which recommended a detailed investigation by the F.B.I. Mr. Kilday testified further that the matter was subsequently dropped and no F.B.I. investigation was undertaken.

"Other witnesses added that the investigation was set aside because, they were told, the attorney general wished to handle the matter 'personally.' The Justice Department is quoted as stating, in an apparent attempt to dissociate you from this matter, that you did not take office until July 1, 1945, while the inquiry was begun in the spring of 1945. Witnesses have informed the subcommittee, however, that although the inquiry was ordered by your predecessor it was abandoned only after your term of office began.

"I am in entire agreement with you that the Justice Department should proceed against the officers in question only on the basis of facts. But I should like to emphasize the inconsistency of your department's position in calling for facts on the one hand, and on the other pigeon-holing the recommendation by one of your divisions for investigation by the F.B.I.—the only agency equipped to develop completely the relevant facts which might be a basis for further action.

Replying to the subcommittee chairman's letter on July 20, the attorney general described as "entirely erroneous" the former's statement that an investigation by the F.B.I. of Army officers and employees who had been engaged in negotiating freight rates for the government had been set aside because the "attorney general wished to handle the matter personally".

"I have never set aside any investigation by the F.B.I. of Army officers or employees who had been engaged in negotiating freight rates for the government during the war nor did any recommendation for such an investigation ever come to my attention," Mr. Clark said. "I have personally taken an active part in attempting to recover alleged overcharges paid by the government to the railroads on wartime traffic. In this connection, I participated in discussions with the Bureau of the Budget and other government agencies and by letter advised the Bureau of the Budget that proceedings for the recovery of the alleged overcharges could be brought and would not be barred by the statute of limitations. I gave instructions that these cases be vigorously prosecuted and for more than three years over 35 employees of the Department of Justice have been engaged exclusively in investigating and prosecuting them. As a result, the department is now actively prosecuting 18 cases for recovery of overcharges estimated to be betwen $1,000,000,000 and $3,000,000,000."

Mr. Clark went on to say that he has been advised that in 1945 "three men" in the anti-trust division prepared a memorandum recommending an investigation by the F.B.I. of Army personnel who negotiated wartime freight rates with the railroads.

The attorney general added, however, that the head of the anti-trust divisision at the time [Wendell Berge], to whom that recommendation was made, determined that a criminal investigation was unwarranted and consequently "did not refer the matter to me" or to the F.B.I. The memorandum, Mr. Clark said, is confidential and accordingly can not be made available to the subcommittee by the department.

"It is incorrect," he continued in part, "to state that the anti-trust division made a report suggesting a criminal investigation of Army traffic personnel. In fact, Mr. Kilday . . . informs that during the course of the comprehensive study of these wartime freight charges no evidence has been found to justify a criminal investigation.

"Unwarranted" Charges Decried

"In your letter . . . you assert that you are in entire agreement with me that the Justice Department should proceed against the officers in question only on the basis of facts. I am sure you recognize the irreparable damage that can be done to individual reputations by unwarranted criminal investigations. Until facts which justify a criminal investigation are found to exist, it would be improper for me to order one. If the subcommittee can furnish facts tending to show misconduct or fraud on the part of Army officers who negotiated wartime freight rates, such facts should be submitted to the Department of Justice for appropriate action."

Wartime Activities of O.D.T. Recorded

Agency's problems, operations traced in 357-page document

Control of domestic transportation operations by the Office of Defense Transportation between 1941 and 1946, inclusive is reviewed in a 357-page document, "Civilian War Transport," which has been prepared and issued by that agency. The document contains 43 chapters, replete with charts and statistical material, an introductory chapter by Colonel J. Monroe Johnson, director of the O.D.T., and an appendix setting out, among other things, the sources of authority under which the O.D.T. has operated and biographical sketches of the "key men" who have been affiliated with that agency since its creation by the late President Roosevelt on December 18, 1941.

According to J. L. White, former executive officer of the O.D.T., the "history" was written from the standpoint of the transportation problems presented and how they were met, with an accent on how things were done rather than what was achieved or who achieved it. Each chapter, he commented, is the joint effort of the authors, the supervisors and the unsung "rank and file."

The scope and arrangement of the history was outlined by J. R. Rose, of the University of Pennsylvania, after conferences with Mr. White, who had general supervision over the work. The editing was done by Otto Praeger, chief of the historical section, and S. L. Miller, assistant to H. C. King, deputy director of the O.D.T., assisted in the revision of the text. The final revision of the entire text for approval by Colonel Johnson was performed by Messrs. White and King.

Tribute to Eastman

Prior to reviewing the overall activities and accomplishments of the O.D.T., Colonel Johnson's introductory remarks include a tribute to the late J. B. Eastman, former chairman of the Interstate Commerce Commission, and first director of the O.D.T., who, as Colonel Johnson states, served with "great devotion and ability" until his death on March 15, 1944.

According to Colonel Johnson, the O.D.T. has accomplished its task of assuring "maximum utilization of the domestic transportation facilities of the nation for the successful prosecution of the war," as set forth in the preamble of President Roosevelt's executive order creating the agency. "The war has been won," he added. "And a major factor in this victory was the winning of the battle of transportation."

One of the O.D.T.'s principal responsibilities was to secure material for transportation equipment considered necessary to wage successful war, Colonel Johnson continued, adding that "in spite of all of our efforts, the material was otherwise assigned." For instance, he said, the O.D.T. during 1942, 1943 and 1944 asked the War Production Board for 311,500 freight cars and received 130,826; 4,159 locomotives and received 2,500; 5,150 passenger-train cars and received 1,977 (including 1,600 troop sleepers and kitchen cars); 5,410,000 tons of steel rail and received 4,701,850; 429,367 trucks and received 233,709; and 26,000 integral buses and received 15,206. "The result was," he commented, "that while the war load increased, the relative supply of transportation equipment decreased."

The War Record

Colonel Johnson recalled that the railroads operated during World War II with 400,000 fewer employees than in 1918, 22,000 fewer locomotives, 600,000 fewer freight cars, 18,000 fewer coaches and 1,000 fewer sleeping cars. "And yet," he said, "in World War II the railroads . . . carried much heavier traffic than in World War I. Railroad passenger-miles in 1944 were up 122 per cent above the 1918 figure. Revenue freight ton-miles were up 81 per cent. During World War I, congestion at ports and terminals was the rule, with few exceptions. During this war, there was not a single serious transportation congestion at the ports or in the inland terminals." He pointed out also, that the average freight rates in 1921 were 75 per cent higher than those in 1914, while the average rates in 1945 were slightly less than in the prewar year 1939.

The O.D.T. director also asserted that the war burden on transportation was more than a matter of carrying military personnel and war materials. In this connection he observed that the submarine warfare and the demand for shipping for war purposes ended substantially all coastwise and intercoastal traffic by water for the duration. "In 1940," he continued, "intercoastal freight via the Panama Canal was equivalent to 217,000 carloads. This was added to the rail burden. Taking off oil tankers from the coastal water routes gave the railroads more than 1,000,000 barrels of petroleum to be carried per day by railroad tank cars. The handling of this oil traffic was one of the transportation epics of the war."

Colonel Johnson said that the generous response by "nature" to the nation's need for food during the war resulted in four successive bumper wheat crops. These loads and large movements of other agricultural products brought about a constant demand for more box cars and refrigerator cars than could be supplied, which problem, he noted, is still with us.

"The only way to move this enormous traffic was by complete utilization of all available equipment," he went on. "Here a veritable miracle was accomplished. . . . The record of accomplishment in this direction under guidance of the O.D.T. . . . is shown by a few significant figures. During the war period the number of bad-order freight cars was reduced by 46,100. Heavier loading requirements resulted in 1944 in the addition of 105,000 cars to the car supply by O.D.T. General Order No. 1 and of 82,000 cars by O.D.T. Order No. 18 and I.C.C. Service Order No. 68. Altogether, the increased efficiency of operation, including faster handling by both railroads and shippers, was equivalent to adding over 600,000 freight cars to the supply. Rail congestion on roads leading to the eastern seaboard . . . was completely prevented by the export permit system. The activities of the O.D.T.'s field service in rerouting freight traffic west of the Mississippi prevented congestion in that area."

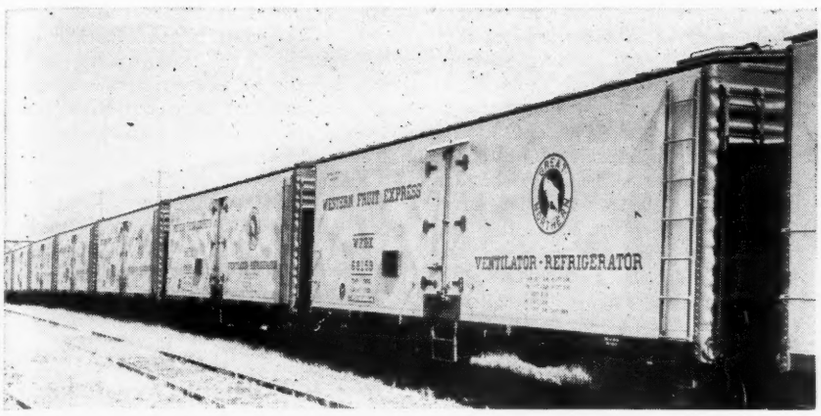
Passenger-Movement Problems

With respect to passenger traffic, Colonel Johnson noted that total railroad passenger-miles jumped from 16 billion in 1941 to 64 billion in 1944, while sleeping car passenger-miles increased from 9 billion in 1941 to 27 billion in 1944. "The O.D.T.," he added, "achieved remarkable results in the efficient use of rail passenger equipment to meet these demands. This was done in large part by securing cooperation in 'Don't Travel' campaigns. The convention ban, which was in effect from February 1, 1945, to October 1, 1945, saved nearly a billion passenger-miles and voluntary abandonment of conventions through the war period probably saved more than two billion more. Various orders and restrictions cut down nonessential train service and put needed passenger equipment into use for troop transportation."

Colonel Johnson also noted that labor difficulties, at one time or another, compelled the O.D.T., on requests from the White House, to take over the operation of transportation facilities — three railroads, more than 100 truck lines, a Great Lakes towing concern, New York harbor tug lines and two local transit companies. Such operations by the O.D.T., he commented, were conducted successfully and at a minimum expense to the government. At the same time, he recalled that the O.D.T., during the two-day railroad strike in 1946, took possession and control of all railroads in the United States and "also coordinated the operations of all other forms of domestic transportation."

O.D.T. Now a Skeleton

According to Colonel Johnson, the O.D.T., at the height of its activities had a total of 4,917 employees, of whom, he said, 4,221 were operating in the field. Of its own volition, he added, the agency reduced its force as the war burden eased and, as of December 31, 1945, had only 141 employees. By



This special train of 100 new refrigerator cars built for Western Fruit Express by the American Car & Foundry Co. left St. Paul, Minn., on July 16 bound for Wenatchee, Wash., where they were destined to go into revenue service. They are among 400 new reefers being currently delivered to Western Fruit Express, a Great Northern subsidiary

the close of the fiscal year June 30, 1946, he continued, there was left only a skeleton organization of 70 employees "with which the O.D.T. carried on its transportation control work during the country's complicated period of reconversion and readjustment."

In a summation of his remarks, Colonel Johnson suggested that, in the future, presidential executive orders should more clearly define the functions of war agencies, such as the O.D.T., in order to minimize overlapping authority. At the same time, he said, there should be "a final coordinating officer with the sole duty of enforcing cooperation between agencies, with the right of appeal to the overall War Mobilization Director."

"From these executive orders," he added, "stems the degree of cooperation between agencies so necessary to the fullest success. Such cooperation existed to a surprising degree between the O.D.T. and certain government agencies, the industry and the public. . . . The magnitude of the cooperation given to the O.D.T. was no less than the magnitude of the task itself, and the credit for winning of the battle of transportation cannot be ascribed to the efforts of any individual or even to the group of transportation experts who have carried on the diverse activities of the O.D.T. in their respective capacities."

"No, the chief credit must be given to the almost miraculous cooperation of all who shared in any way in the effort. This includes the thousands of businessmen on the various volunteer committees and advisory boards in every field of transportation who gave their aid so unselfishly without compensation or public acclaim. Fullest credit must also be given to the men actively running transportation . . . the railway, waterway, truck, bus and airway associations, to these groups collectively and to all their members individually. The executives of all the transportation companies and all other employees — each and every one — must take full share in the credit for the winning of the battle of transportation.

"For all who thus rose to the war occasion, the story of the O.D.T. . . . stands as a monument to their share in the war's greatest exemplification of the American spirit."

Santa Fe Denied St. Louis Entry

Commission fears competition would weaken other lines

Following the recommendations made last November by Assistant Director C. E. Boles of its Bureau of Finance and Examiner A. G. Nye, the Interstate Commerce Commission has declined to approve proposed arrangements whereby the Atchison, Topeka & Santa Fe would obtain a direct line between Kansas City, Mo., and St. Louis, and the Chicago, Burlington & Quincy would improve its route between those two points and shorten its Chicago-Kansas City route by 22 miles. The arrangements were proposed in a joint Santa Fe-Burlington application and in a Gulf, Mobile & Ohio application to transfer to those two roads the control of the Kansas City, St. Louis & Chicago, which the G.M. & O. obtained in connection with its acquisition of the Alton.

The commission's findings, with Chairman Lee and Commissioner Splawn joining in the dissent of Commissioner Mahaffie, were contained in an 86-page report covering both applications, the title case being Finance Docket No. 15365, and made public on July 16. The Boles-Nye proposed report was outlined in detail in *Railway Age* of November 22, 1947, page 46.

The plan contemplated joint operation by the Burlington and Santa Fe between St. Louis and Kansas City over the so-called Burlington-Alton joint line. That line extends eastward from Kansas City through Higginsville, Mexico, Francis and Old Monroe to St. Louis and would have given the Santa Fe a direct Kansas City-St. Louis route.

The proposal to take over the Kansas City, St. Louis & Chicago from the G.M. & O. contemplated that the Santa Fe and Burlington would control that property jointly and assume the former Alton lease of it. Use of this property would have taken the Santa Fe from Rock Creek Junction, near Kansas City, to Mexico, 156 miles on its way to St. Louis. Trackage rights (extending also to the Burlington) obtained from the G.M. & O. (as lessee of the Louisiana & Missouri River) over 2.5 miles between Mexico and Francis would have provided the connection with the Burlington's 112-mile line from the latter point to St. Louis, over which the Santa Fe would have acquired trackage rights. Additional trackage arrangements with the Burlington nd Kansas City Terminal would have rounded out the route at that end, while the St. Louis entry was to have been perfected by arrangements for operation into the Union Station there over tracks of the Terminal Railroad Association.

The phase which involved shortening the Burlington's Kansas City-Chicago route by 22 miles contemplated that road's operation under trackage rights over the Santa Fe's 104-mile line between Bucklin, Mo., and Sheffield, near Kansas City, including the right to use the Carrollton-Camden Junction section of the line where single tracks of the Santa Fe and Wabash are paired for double-track operations. In transferring the lease of the K.C.St.L. & C. to the Santa Fe and Burlington, the G.M. & O. would have reserved trackage rights for its freight service over lessor's 156-mile line between Rock Creek Junction and Mexico, and the "exclusive right" to use all K.C.St.L. & C. facilities west of Rock Creek Junction, except that the Burlington and Santa Fe would have had the right to operate over an 0.88-mile connection between tracks of the Kansas City Terminal over which their joint plan contemplated that they would have trackage rights.

Opposed by Other Railroads

Various railroads, including the Missouri Pacific, St. Louis-San Francisco, St. Louis Southwestern, Chicago, Rock Island & Pacific and the Texas & Pacific, intervened in opposition to the applications. The Missouri-Kansas-Texas and the M.-K.-T. of Texas intervened for the purpose of urging the preservation of existing joint through routes and the maintenance of existing gateways, while the Wabash intervened to protect its interests.

The findings of the commission's majority were substantially the same as the recommendations set out by Messrs. Boles and Nye. It concluded that there is "no lack of transportation facilities or of competition" in the Kansas City-St. Louis area and that, unless justified by future developments, additional service at this time would be "wasteful and unwarranted." The commission also observed, after noting that opposition to the proposals centered around the contemplated entry of the Santa Fe into St. Louis, that "generally speaking, the gains of the Santa Fe would equal the losses of the protesting railroads and their western connections."

According to the commission, estimates of traffic diversion varied from the Santa Fe's expectation that its gross revenues would be increased by $7,321,791 per year to the estimates of the protestant roads that they would lose from $17.3 to $21.6 million in revenues as the result of the proposed plan. On this phase, the commission, as did Messrs. Nye and Boles, asserted: "Considering all factors that have controlled the routing of traffic shown in the protesting railroads' traffic studies . . . the amount of revenue on the 1940 basis which the protesting railroads would lose from diversion of carload freight traffic would probably not exceed $10,000,000 or $11,000,000." In addition, the commission said, they would lose "considerable revenue" from l.c.l. business and an "indeterminate amount of their passenger-train revenues." "We have approved transactions found to be desirable and necessary in the public interest notwithstanding the prospective loss of some revenue by competing carriers," it added. "We have not done so, however, where the proposed transaction would endanger or impair the operations of other carriers contrary to the public interest."

Effect on Protesting Lines

The commission held that both the Burlington and Santa Fe are stronger financially than the protestants, which, it said, do not have the credit or the financial standing that is associated with a long dividend record and a substantial surplus. "To establish their credit," the commission continued, "they must earn sufficient to pay their fixed charges with something over for junior security holders. Until their credit is established, they must look to their earnings to improve their property and their service to the public."

"Should the net railway operating income of the protesting railroads be no greater than their average for the 10-year period 1931-1940, loss of gross freight revenues in the amount of $10,000,000 or $11,000,000 a year would be a serious threat to their ability to earn their fixed charges, finance their future requirements and serve those areas of the public which are dependent upon them for rail transportation," the commission's report went on. "While it is the view of expert witnesses that rail freight traffic in a normal postwar year for the nation will be approximately 27 per cent in excess of such traffic in the year 1940, and while there is testimony that rail passenger traffic will be approximately 50 per cent in excess of such traffic in the same year, there is no proof that either the freight or passenger revenues of the protesting railroads will increase by like percentages. The evidence is to the contrary. . . .

"While the economic growth and industrial development of the territory served by the protesting railroads is continuing, it does not follow that there is reasonable probability of the traffic or earnings of the protesting railroads being increased by this growth and development. . . . The temporary lull in competitive activities of other forms of transportation should not obscure the possible future intensity of such competition, and future development of the territory served by the protesting railroads must be predicated upon resources which are highly susceptible to diversion to competing forms of transportation.

"The bridge traffic of the protesting railroads is not so susceptible to other forms of competition and in future normal years the protesting railroads will doubtless find themselves in need of all the traffic of this character they can obtain. Because of constantly increasing costs of operation and the rapidly approaching limits of what the traffic will bear in increased rates, no one can say what part of the gross earnings from traffic retained . . . the protesting railroads will be able to show as net railway operating income, or whether that income will be sufficient to enable them properly to maintain their properties, pay their fixed charges and provide the necessary improvements and render safe, adequate, economical and efficient transportation service to the public."

Passenger Operations Planned

Passenger services under the proposed new set-up would have included three Santa Fe-Burlington jointly operated through passenger trains in each direction between Kansas City and St. Louis. But the commission, again agreeing with Messrs. Boles and Nye, held that the applicants did not show that such trains could be operated at a profit, whereas the evidence of the protesting carriers indicated that the service would be conducted at a loss.

Asserting that no need was shown for these passenger operations by either road, the commission quoted contentions of the protesting carriers that the services "would no doubt be given for the purpose of controlling carload traffic" and "are connected with the plans of the Santa Fe to divert the more lucrative carload traffic from the protesting railroads." It added that "dissipation of the earnings" of the joint applicants in unnecessary and unprofitable passenger-train and package-car operations and the "dissipation of earnings" of the St. Louis railroads in their effort to maintain their competitive position would not accord with the national transportation policy.

"The fact that two of the strongest railroads in the United States propose to unite in an arrangement whereby they could attract to their lines from competing carriers a large volume of traffic and handle it at favorable operating costs would inure largely to their benefit and possibly to the benefit of some shippers, but ultimately, because of the power that might be exercised in an area where competition is so keen, the transportation facilities in the entire southwestern section of the country would probably be adversely affected," said the commission, in concurring with the proposed report.

Might Affect Other Sections

"Traffic losses of other carriers . . . unable to compete with such a powerful combination might be so great as to result in the curtailment of service or abandonment of substantial portions of their lines, either of which would be detrimental to the public interest . . . The policy of railroad managements to obtain long hauls over their lines is too pronounced the warrent a finding that the Santa Fe would continue, in the slightest degree, to interchange with other carriers any traffic which it could handle to or from St. Louis. Furthermore, a requirement that the applicants maintain present routes or gateways would not prevent the loss of traffic by other railroads now handling such traffic in connection with the applicants via such routes and gateways."

In his dissenting opinion, Commissioner Mahaffie, who said he would have approved the applications, expressed the view that the denial was based "almost entirely" on the "possible harm" to the protesting railroads if entry by the Santa Fe into St. Louis had been permitted.

"This, if well founded, might afford a valid basis for denial," he continued. "But I do not consider it well founded. Of course if the line is greatly improved and the traffic can be handled over it more economically and efficiently than over existing lines there will be, and there should be, some diversion of traffic. But I see no diversion of such traffic—and the report indicates none—as would jeopardize the maintenance of adequate transportation service in the Southwest.

"The reasoning of the report, if applied generally, would pretty much freeze the railroad plant. If it had been applied to all transportation as of, say, 1920, it would have prevented the entry of motor carriers and perhaps of air carriers into the transportation field. It is not, as I see it, in accord with the principles of the act which . . . are intended to promote adequacy and effi-

ciency of transportation service for the benefit of the public. Competition, unless clearly shown to be destructive, still has merit as a spur to progress."

C.P.R. Officer Calls for an Interim Freight Rate Increase

Because their annual payroll costs have been increased about $75 million by the wage increase of 17 cents per hour just allowed Canadian railway employees (reported in *Railway Age* of July 17, page 49), the railroads in that country should be permitted to apply a further freight rate increase of 15 per cent on an interim basis, pending final decision by the government agencies on the merits of their case for a permanent rate increase, said N. R. Crump, vice-president of the Canadian Pacific. This interim increase, if authorized, would just about meet the additional wage cost applicable to C.P.R. railroad operations ($27,200,000), he estimated. It is expected that any further rate increase, interim or permanent, will be vigorously opposed by the governments of seven of the Canadian provinces, as they made a determined effort to prevent the recent authorization of a 21 per cent general increase.

Proposed Multiple-Car Rates Too Far Below Single-Car Basis

Finding that the Missouri Pacific and New Orleans, Texas & Mexico had failed to justify multiple-car rates on such a low basis as 48.1 per cent to 58.1 per cent of the single-car basis, Division 3 of the Interstate Commerce Commission has ordered the cancellation of suspended tariffs wherein those roads proposed to establish rates on limestone from Illmo, Mo., and Prairie du Rocher, Ill., and Valmeyer to Baton Rouge, La., and North Baton Rouge, subject to a minimum weight of 2,000 tons or the equivalent of about 28 carloads of 70 tons each. The report is in I. & S. Docket No. 5545.

The rates were designed to obtain traffic expected to move to the North Baton Rouge alkali plant of the Solvay Process Division of the Allied Chemical & Dye Corp. Solvay is making arrangements to obtain limestone from Illmo, Prairie du Rocher or Valmeyer, and it had indicated that it would install its own barge-transportation facilities unless it obtained railroad rates on the foregoing basis.

The proposed rates would have ranged from $1.40 from Illmo, a distance of 661 miles, to $1.56 from Valmeyer, a distance of 762 miles; present single-car rates range from $2.70 to $2.91. In condemning the proposal because of these spreads, the commission recalled that the multiple-car rates it approved in the so-called Blackstrap Molasses case, 235 I.C.C. 485, where it first authorized such rates, were 85 per cent of the single-car rates.

Respondents in the present case "offered little evidence bearing directly upon these spreads," the report said. It added that "in the absence of convincing evidence in that respect, we cannot find such wide spreads to be just and reasonable."

I.C.C. Bureau Issues More Data on 1947 Traffic Flow

The Bureau of Transport Economics and Statistics of the Interstate Commerce Commission has issued tables showing, on a one-per-cent-sample basis, the intraterritorial and interterritorial movements of freight traffic together with the associated revenues as represented by carload terminations reported by Class I railroads for the third quarter of 1947. The compilation, Statement No. 4818 of the bureau, also includes other tables showing for corresponding territorial and commodity groups total short-line car-miles and ton-miles, average short-line haul per ton and average revenue per short-line ton-mile.

The statement is in the same form as that presenting like figures for 1947's first quarter, which was described in detail in *Railway Age* of January 10, page 43. The data are being taken from waybills submitted in response to the commission's September 6, 1946, order requiring Class I roads to file all audited waybills representing their carload terminations which are numbered "1" or with numbers ending in "01."

Commuter-Leased Air-Conditioned Coaches Installed by C.N.J.

Four air-conditioned commuter-club coaches were placed in service last week by the Central of New Jersey. The cars, which are being leased from the road by the clubs, were completely reconditioned at the Elizabethport, N. J., shops, where the air-conditioning equipment also was installed. The leasing of the coaches by commuter clubs resulted from a questionaire submitted to commuters several months ago by the C. of N.J. The clubs will pay the initial cost of the air-conditioning equipment and its installation on a 15-year amortization basis. (See *Railway Age* of May 1, page 55, and April 24, page 69.) The road also announced that a fifth club has signed a lease for an air-conditioned coach, which will be ready for service later in the summer.

Protests Plan to Take Radio Frequencies from Railroads

The Association of American Railroads has filed with the Federal Communications Commission its protest against the commission's pending rule-making proposal under which railroad radio services face the loss of 19 of the 60 frequencies now allocated to them in the 152-162 Mc. band. The association argued against the proposal on technical grounds and also stressed the importance of the railroads to the national defense and their interest in all developments which contribute to the safety of operations.

In the latter connections, the commission was urged "not to lose sight of the fact that the fundamental purpose set forth in section 1 of the Communications Act, and the reason for the creation of the Federal Communications Commission, is the regulation of interstate communication by wire and radio communication service 'for the purpose of national defense' and 'for the purpose of promoting the safety of life and property through the use of wire and radio communication.'" In the effectuation of these purposes, "it would seem apparent that the provision of adequate frequencies for the use of the nation's railroads in their operations should have a high priority," the A.A.R. added.

It asked for "full hearing and oral argument," unless the commission, as a result of written submissions, decides to abandon the proposal, which was outlined in the *Railway Age* of June 19, page 53. As noted there, the F.C.C. proposes to assign the 19 frequencies it takes from the railroads to a new Public Safety Radio Services.

The F.C.C. announcement contained statements which the A.A.R. interpreted as reflecting a "feeling of disappointment" on the part of the commission "over the progress which has thus far been made by the railroads in the utilization of the frequencies allocated to them." Expressing its belief that any such feeling was not justified, the A.A.R. presentation proceeded to point out that the Railroad Radio Service has been in actual existence only 2½ years. It conceded that railroad installations may not have progressed as rapidly as those in some other radio services, but suggested that this was to have been expected in view of various factors "which militate strongly against rapid installation of railroad communication on a large scale."

One such factor was listed as the lack of incentive for manufacturers to develop "highly specialized" equipment to meet railroad needs when they could maintain full production on equipment "of less exacting requirements" for other mobile services. Also mentioned was the unfavorable postwar financial situation of the railroads; and the Dieselization programs which prompted many roads to delay ordering and installing radio equipment until their new Diesel-electric locomotives were delivered.

Meanwhile, the A.A.R. said there was "every reason to believe" that progress on railroad radio installations "will be much more rapid during the next few years" if the carriers "are assured of the availability to them of the necessary frequencies." Responses to a recent questionaire sent out by the A.A.R. indicated that "approximately $15,000,000" will be spent by the railroads on radio equipment during the next three years. The association's state-

ment also pointed out that at the present time there are 58 railroad systems in the United States of 500 miles and over; and that 31 of these systems are now using radio communication. In addition, 13 railroads of less than 500 miles are using radio.

The A.A.R. also filed with F.C.C. another statement dealing with various other phases of the rule-making proposal. That statement suggested certain modifications of the proposed rules and definitions, but made no request for hearing or oral argument on the matters involved. Several individual railroads have also filed objections to the commission's proposal.

M.-K.-T. Establishes 440-Car Oil Loading Station in Texas

A new tank-car station called "Morfa" has been opened near Wichita Falls, Tex., by the Missouri-Kansas-Texas to handle oil reaching that point through a 22-in. pipe line from Jal., N. M. The track and loading facilities are designed so that approximately 9 trains of 50 cars each can be loaded and moved out daily.

The loading platform is operated from two catwalks, one 1,650 ft. and the other 1,260 ft. in length, serving 4 trancks. Four storage tanks now in service have a combined capacity of 490,800 barrels. Eventually nine additional tanks will be in service. A railroad coach serves as headquarters for the personnel of the Katy. The station, which is open 24 hr. a day, has been named in honor of R. J. Morfa, chairman of the board of the road.

Buford Tells Shippers Board War Profiteering Charges Are a Libel

C. H. Buford, president of the Chicago, Milwaukee, St. Paul & Pacific, branded the efforts of "certain persons to convince the public that during the war the railroads charged the government" excessive freight rates, as "a vicious libel upon many conscientious and patriotic men," in his remarks to the Midwest Shippers Advisory Board at Milwaukee, Wis., July 15. Mr. Buford stated that government traffic was transported at rates which in no instance were higher than those charged commercial shippers, and, in most instances, substantially less. The rates frequently were lower because of land-grant deductions applicable to military traffic, and also because reduced rates were established by agreement between the railroads and representatives of the government, as authorized by section 22 of the Interstate Commerce Act, the Milwaukee's president told the board. The procedure of negotiating these section 22 quotations was submitted to, and approved by, the then assistant attorney general in charge of the Anti-Trust Division of the Department of Justice, he continued. "Not only were the rates to the government generally lower," Mr. Buford stated, "but preferred service was given at all times to the government, and commercial traffic was subordinated to the needs of the government."

Mr. Buford also discussed Office of Defense Transportation Order No. 18-A which will expire on February 28, 1948, unless Congress extends the life of the O.D.T. prior to that time. This order, which provides for heavier minimum loadings than prewar, is estimated to make available equipment equal to 290,000 additional cars annually. Mr. Buford urged that the board consider seriously "whether the shippers and the railroads, based on current transportation and car supply conditions, can afford to lose the heavier loading of cars" which the order accomplishes, and expressed the hope that it might be continued as an I.C.C. order.

Reopening of East-West Divisions Case Denied by Commission

The Interstate Commerce Commission has refused to reconsider its findings in the proceedings wherein it prescribed new bases for divisions of rates between eastern railroads generally and six western roads—the Chicago Great Western; Chicago Rock Island & Pacific; Kansas City Southern; Missouri-Kansas-Texas; Missouri Pacific; and St. Louis-San Francisco—which refused to subscribe to the apportionment plan agreed upon in 1939 by other western roads and the eastern lines.

As noted in *Railway Age* of March 20, page 92, the commission's February 12 order was in the No. 28277 proceeding embodying the nine-year-old complaint of the six dissatisfied western roads, and the related No. 28589, embodying a complaint—in the nature of a cross-complaint—wherein the eastern roads alleged that the complainants in the case were already receiving unjust, unreasonable and inequitable divisions.

Meanwhile, as reported in *Railway Age* of July 3, page 41, the commission set back from July 1 to September 1 the effective date of its order, reconsideration of which was opposed by 14 additional western roads and the eastern carriers.

New A.A.R. System to Expedite Wheat Crop Movement

Under the general system for the handling of the winter wheat crop moving into storage, announced July 16 by the Association of American Railroads, it will be possible to move promptly all the wheat for which storage room can be found in the southwest and midwest, according to J. H. Aydelott, vice-President, operations and maintenance, of the A.A.R.

"The embargo previously in effect against the movement of wheat to certain points has been lifted as to wheat moving for sale and not for storage," Mr. Aydelott said. "The railroads will also accept all wheat moving for storage by shippers who can assure them that the cars they load can be unloaded promptly at destination. To load wheat which could not be unloaded would mean that scarce box cars which are needed for transportation of the crop would become nothing more than wheeled warehouses. Such a condition would soon choke all channels for the movement of grain, without doing anyone any good."

Pointing out that the nation's second largest wheat crop is being harvested with unusual rapidity because of weather and ripening conditions, Mr. Aydelott said that the railroads had on hand in the grain belt, at the beginning of the harvest, 12,521 more grain cars than were available at the opening of the harvest last year. Since that time, he added, empties have been arriving in the harvest area at the rate of more than 1,000 cars a day.

The A.A.R. also has cancelled embargoes at Kansas City, Mo.-Kan., St. Joseph, Mo., and Hutchinson, Kan. These embargoes were imposed first at Kansas City, at a time when there were in the yards at that point 3,388 cars awaiting disposition, with another 5,001 awaiting unloading at the mills and elevators and still another 1,247 cars held back within a 100-mile radius of the city. The new system according to Mr. Aydelott, is designed to prevent similar accumulations at other markets in excess of ability to unload and store grain.

Indian Railways Seek Locomotives; Ask Help in Building New Shops

According to an announcement by the U. S. Department of Commerce, K. C. Bakhle, chief commissioner of railways for the government of India, arrived at Washington, D.C., July 21 on a three-fold mission:

(a) To enter into agreement with an American locomotive manufacturer to obtain technical assistance, including personnel, in connection with a plant being built in India by the Railway Board of Ministries of Railways, with production capacity of 120 locomotives and 50 spare boilers per year. Locomotives include broad and meter gage designs. The plant is scheduled for completion by the end of 1949. The Indian government would like the American company which may be associated in this enterprise to supply essential locomotive components and parts. The plant would be completely government owned. Mr. Bakhle has stated that the Indian government has an open mind as to the nature of the agreement contemplated.

(b) Purchase of 2-4-0 locomotives of broad, meter, and narrow gage.

(c) The Railway Board would like to reach agreement with an American firm for planning and provisioning of equipment for a proposed shop in India for manufacturing all-steel welded coaches.

Mr. Bakhle will leave the United States on July 28 or 29.

Interested persons are invited to get in immediate contact with K. Ram at the Indian Embassy, or D. N. Kowshik of the India Supply Mission, both in Washington, who are arranging meeting for Mr. Bakhle.

June Revenues 17.6 Per Cent Above Those of June, 1947

From preliminary reports of 82 Class I railroads, representing 81.2 per cent of total operating revenues, the Association of American Railroads has estimated that the June gross amounted to $665,909,977, an increase of 17.6 per cent above the $566,117,883 reported for the same 1947 month. Estimated June freight revenues amounted to $547,692,038, as compared with $450,225,880, an increase of 21.6 per cent, while estimated passenger revenues amounted to $68,231,026, as compared with $69,368,065, a decrease of 1.6 per cent. The estimate for all other revenues was $49,986,913, as compared with $46,523,938, an increase of 7.4 per cent.

Equipment on Order

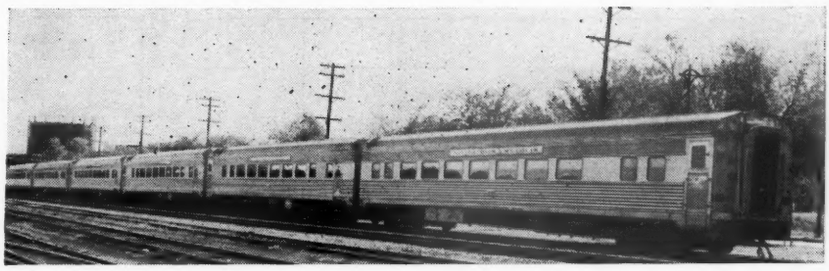
Class I railroad and private car lines had 122,181 new freight cars on order on July 1, compared with 109,006 on order on July 1, 1947, according to the Association of American Railroads. Of the former total, Class I roads and railroad-owned private-controlled refrigerator car companies had 110,431 new freight cars on order, as compared with 102,634 on order on July 1, 1947.

Cars on order by Class I roads and controlled refrigerator companies on July 1 included 29,701 box cars, of which 29,370 were plain and ventilated and 331 automobile box cars; 49,287 hopper cars, including 4,105 covered hoppers; 19,445 gondolas; 3,685 flat; 6,866 refrigerator, 600 stock and 847 miscellaneous freight cars. Of the total number of new freight cars which Class I roads had on order on July 1 23,699 will be built in railroad shops and 86,732 in outside shops.

The Class I roads also had 1,695 locomotives on order on July 1, the most since August 1, 1923, when the number was 1,772. On July 1, 1947, there were 794 on order. The 1948 total included 123 steam and 1572 Diesel-electric locomotives, compared with 24 steam, five electric and 765 Diesel-electric on July 1, 1947.

Class I roads and controlled refrigerator car companies put 50,918 new freight cars in service in the first six months of 1948, compared with 20,735 in the same 1947 period. Of the former total, 9,835 were installed in June, the greatest number of new freight cars installed in service in any month since April 1942.

Those installed so far this year included 20,905 box cars, of which 19,872 were plain and ventilated and 1,033 automobile; 20,972 hopper cars, including 815 covered hoppers; 5,053 gondolas; 3,530 refrigerator; 42 flat; 250 stock and 166 miscellaneous freight cars.



Six new streamlined, stainless steel coaches are now in service on passenger trains of the Minneapolis & St. Louis. The cars were built by the Budd Company at a cost per unit of about $100,000. Each seats 56 passengers in the main section of the car and 4 in each of two lounges. Individual oil-burning units provide energy for heat, air-conditioning, light and hot water

The Class I roads also put 648 new locomotives in service in the first six months of 1948, of which 24 were steam, four electric and 620 Diesel-electric. New locomotives installed in the same period last year totaled 418, of which 63 were steam, one electric and 354 Diesel-electric.

The Class 1 roads and affiliated refrigerator car companies retired 36,797 freight cars in the first six months of 1948, of which number 7,504 were retired in June. In the same 1947 period, 27,802 cars were retired.

Steam Locomotive Research Institute to Continue Work

The board of directors of the Steam Locomotive Research Institute has announced that it will appoint a director of research to succeed the late Lawford H. Fry, director of research of the institute at the time of his death on July 11. It is the intention of the directors of the institute that the work of this organization will be continued.

Class I Roads Ordered to Make Test Studies of Freight Car-Miles

Division 1 of the Interstate Commerce Commission has required all Class I steam railways subject to Part I of the Interstate Commerce Act, except switching and terminal companies, to make test studies from freight conductors' wheel reports of loaded and empty car-miles by types of equipment. The results of the studies, together with train-mile and other statistics for way trains and all trains combined, are to be compiled and submitted by the carriers to the commission's Bureau of Accounts and Cost Finding. The test study period consists of one day in every seventh week, starting on Sunday, August 15, and concluding on Saturday, June 11, 1949.

The commission's order defines way trains as those trains operated primarily to gather and distribute cars in road service and move them between way stations or way points on the one hand and concentration or distribution points, terminals, tie-up points, junctions or way stations on the other hand. Trains which are operated primarily to move cars in road service between two or more concentration or distribution points or terminals and which incidentally perform some switching at way stations should not be classified as way freights, it said.

The order also stated that questions relating to the test studies should be addressed to the Bureau of Accounts and Cost Finding, Interstate Commerce Commission, Washington 25, D. C.

Freight Car Loadings

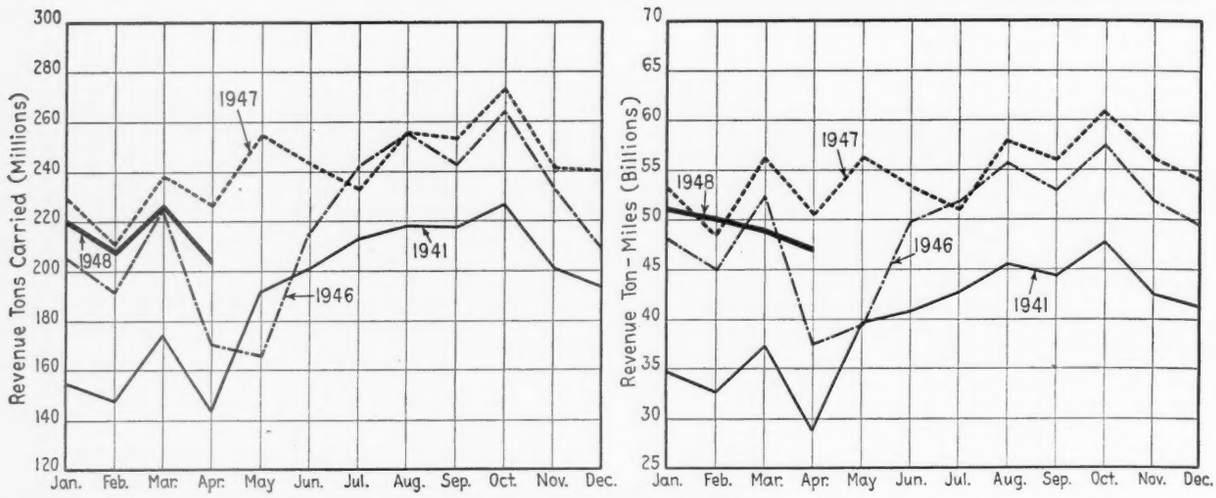
Carloadings of revenue freight in the week ended July 17 totaled 892,527 cars, the Association of American Railroads announced on July 22. This was an increase of 136,767 cars, or 18.1 per cent, above the preceding week, which included the July 5 holiday, a decrease of 27,208 cars, or 3.0 per cent, below the corresponding week last year, and a decrease of 28,969 cars, or 3.1 per cent, below the equivalent 1946 week.

Loadings of revenue freight for the week ended July 10 totaled 755,760 cars, and the summary for that week as compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loading
For the Week Ended Saturday, July 10

District	1948	1947	1946
Eastern ...	124,130	137,646	159,855
Allegheny ..	156,895	176,686	190,364
Pocahontas .	56,692	34,052	69,428
Southern ...	113,113	114,103	134,262
Northwestern	115,174	136,873	135,906
Cent. West..	124,160	136,057	136,815
Southwest. .	65,596	71,700	68,452
Tot. West. Dist.	304,930	344,630	341,173
Tot. All Rds.	755,760	807,117	895,082
Commodities:			
Gr. & gr. prods. ...	62,674	70,225	59,027
Livestock ..	7,587	11,402	20,393
Coal	157,876	102,709	189,628
Coke	12,068	12,306	13,393
For. prods. .	38,851	44,706	45,730
Ore	77,591	85,537	75,859
Merch'e. l.c.l.	84,111	109,871	121,167
Misc.	315,002	370,361	369,885
July 10	755,760	807,117	895,082
July 3	757,366	629,204	679,775
June 26	888,582	846,141	879,544
June 19	906,774	901,296	858,423
June 12	906,948	895,292	867,918
Cumulative total, 28 weeks	22,280,326	23,105,918	20,590,719

In Canada.—Carloadings for the week ended July 10 totaled 76,587 cars as



Revenue Tons and Revenue Ton-Miles—1948 Compared with 1941, 1946 and 1947

compared with 71,064 cars for the previous holiday week, and 78,244 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
July 10, 1948 ...	76,587	27,306
July 12, 1947 ...	78,244	35,516
Cumulative Totals for Canada:		
July 10, 1948 ...	2,064,376	973,827
July 12, 1947 ...	2,018,707	1,032,780

Holds Taft-Hartley Act Boycott Ban Applicable to Railroads

The Taft-Hartley Act's ban on secondary boycotts applies to employees of railroads, according to a precedent-setting decision by a trial examiner for the National Labor Relations Board. Unless exceptions to the examiner's findings are filed before August 3, his decision automatically will become that of the board itself.

The examiner, F. B. Parkes, II, found that a local affiliate of the International Brotherhood of Teamsters, Chauffers, Warehousemen & Helpers of America, American Federation of Labor, sought to prevent the Texas & New Orleans and the New Orleans, Texas & Mexico from doing business with six rice mills at Crowley, La., Abbeville and Kaplan last fall.

The union struck the mills in an effort to force them to recognize it as bargaining agent for their eligible employees. The union then proceeded to picket the sidings of the two railroads to prevent trains operated chiefly by members of railway operating brotherhoods from servicing the mills. There were reported threats to fire buckshots at the train crews if they crossed picket lines and later, according to the examiner's report, the railroad employees' representative allegedly was told that "if our pickets won't stop you, dynamite will."

The crews refused to cross the picket line from October 16, 1947, until the picketing ceased on October 22. A further consequence of their refusal to pass the picket line was the cessation of service to mills not involved in the dispute but whose plants were located on the tracks of the two carriers between the struck and picketed mills.

According to the report, both roads rendered service to the struck mills during the picketing by operating trains manned by supervisors and officers who took over operation of the trains at the point where the picket lines crossed the tracks, entered the mills, performed the necessary switching operation, removed loaded cars and then returned the trains to the crews after passing the picket lines.

Although the A.F. of L. union argued that railroads and their employees are exempt from the Taft-Hartley Act, and are covered instead by the Railway Labor Act, which contains no ban on secondary boycotts, Examiner Parkes held in part that acceptance of that contention would remove from the ambit of the Taft-Hartley Act "the industry possibly most directly and extensively concerned with commerce, namely, the vast railroad transportation system."

"In addition," he continued, "such acceptance would create an illogical hiatus in the law obviously not intended by Congress. . . . Obviously, such an interpretation . . . would encourage the extension of disputes to railroads and their employees, creating an effect on commerce antipodal to that intended by Congress."

Would Honor Roy V. Wright In Essay Contest Title

The New York Railroad Club's railroad essay prize committee has recommended to the executive committee that the club's railroad essay contest be designated the Roy V. Wright Prize Competition, in memory of the late managing editor of *Railway Age,* who was active in developing plans for the contest. As announced in *Railway Age* of June 5, page 77, this competition, which offers substantial prizes for the best papers relating to the improvement and efficiency of railroad administration and operation, will close February 1, 1949. Additional information may be obtained from David W. Pye, executive secretary of the New York Railroad Club, 30 Church street, New York 7.

I.C.C. Finds Derailment Caused by Insecure Track

"Insecure condition of the track" caused the derailment of the Baltimore & Ohio's passenger train No. 4, the "Diplomat," eastbound from St. Louis, Mo., to New York, near Laurel, Md., on June 10, according to the report on an Interstate Commerce Commission investigation conducted under the supervision of Commissioner Patterson. The accident resulted in the death of 1 Pullman employee and the injury of 53 persons, including 32 passengers, 1 Pullman employee, 11 dining-car employees, 1 inspector of passenger service, 1 railroad real estate agent, 5 track laborers, 1 train porter, and 1 train-service employee.

It occurred on a curve where there was under way maintenance work which, the commission said, "rendered the track unsafe for train movements." The report added: "There was no train order or bulletin restricting the speed of No. 4 over the curve involved and flag protection was not provided for the maintenance-of-way forces. Under the rules of the carrier, no train should have been permitted to move over the track in the condition which existed where the derailment occurred." The train was traveling at its speed limit of 75 m.p.h, having got the green light from the governing signal located 1.25 miles west of the point of accident.

The latter was 18.13 miles east of Washington, D. C., and 3,847 ft. east of the station at Laurel, on the eastward main track of the B.&O.'s double-track Washington-New York line over which trains moving with the current of traf-

fic are operated by signal indications and an automatic train-stop system. From the west there is a 1 deg. 30 min. curve to the right 1,966 ft. in length, then a compound curve to the left, having a maximum curvature of 2 deg. 36 min., 1,373 ft. to the point of derailment (*Continued on page* 124)

Court Asked to Discharge Injunction Against Three Operating Unions

The federal district court for the District of Columbia is in receipt of a motion filed by the Department of Justice to discharge the permanent injunction which Justice T. Alan Goldsborough issued on July 1 to restrain the three holdout railroad operating unions and their leaders from staging a strike. As this issue of *Railway Age* went to press, the court had not taken any action on the motion. The brotherhoods have to and including July 26 in which time to file a reply.

The department's action to discharge the injunction was taken as the result of termination of government control of the railroads on July 9, the day after management representatives and leaders of the three unions had agreed to end their wage and rules dispute on the basis of a "proposal for settlement" which had been submitted to them by Dr. John R. Steelman, assistant to President Truman (see *Railway Age* of July 17, page 34).

Meanwhile, the brotherhoods, whose appeal of the preliminary injunction is still pending in the Court of Appeals for the District of Columbia, also have appealed the permanent injunction in the same court. The court, however, has not as yet taken any action.

Additional General News appears on pages 124 through 128.

SUPPLY TRADE

The **United States Steel Supply Company,** subsidiary of **U. S. Steel Corporation,** has announced the opening of a steel warehouse and facilities in San Francisco, Cal.

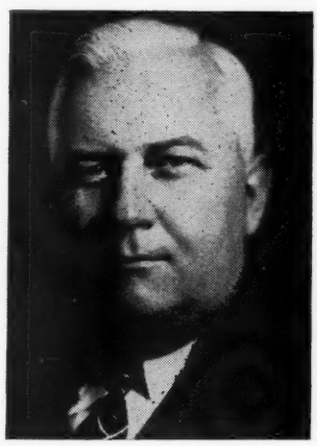
Crozier S. Wileman, district sales engineer of the **Link-Belt Company** at Philadelphia, Pa., has been appointed district sales engineer at Wilkes-Barre, Pa., succeeding **A. C. Williams,** who has retired after 43 years of service with the company.

John F. Parker, vice-president and treasurer of **Iron & Steel Products, Inc.,** at Chicago, has been elected president and treasurer, succeeding the late **A. G. Bladholm. W. J. Parker,** vice-president and secretary, has been elected executive vice-president and secretary and **Charles A. Marshall,** general manager, has been advanced to the position also of vice-president.

J. J. Collins, has been appointed assistant general manager of **Iron & Steel Products, Inc.,** Chicago. He was formerly a supervisor of the scrap and reclamation department of the Erie at Meadville, Pa., having served 37 years with that railroad.

William E. Corrigan, formerly vice-president of eastern regional sales of the **American Locomotive Company,** has been placed in charge of sales of the locomotive division, including direction of all sales activities of district sales offices, and will maintain offices in both Schenectady, N.Y., and New York. The post of vice-president of eastern regional sales has been abolished.

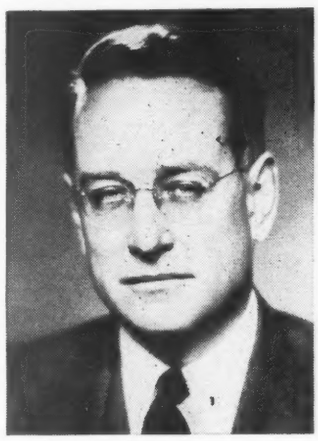
Mr. Corrigan began his Alco career in 1909 when he commenced a four-year study in locomotive construction at the company's plant in Schenectady. In 1915, he transferred to the company's former plant at Paterson, N.J., as assistant engineer. He entered the United States Army in 1917, attaining the rank of captain and, after the war, became ordnance district chief and



William E. Corrigan

chairman of the claims board of the Rochester Ordnance District. He rejoined Alco in 1920 in the New York sales office. He was appointed district sales manager for the Pacific coast at San Francisco, Cal., in 1923, and at Cleveland, Ohio, in 1930, opening the company's sales offices in these cities. He was appointed assistant vice-president in charge of the Railway Steel Spring division in 1935 and vice-president of sales of that division in 1937. In World War II, Mr. Corrigan served as vice-president in charge of miscellaneous munitions and Diesel engine division, contract cancellations, after which he was appointed vice-president of eastern regional sales.

John J. Lincoln Jr., has been appointed manager of the railroad department of the **Air Reduction Sales Corporation,** with headquarters in New York. The railroad department maintains regional sales offices at New York under C. B. Armstrong, and at Chicago under D. J. Williams, with divisional offices at



John J. Lincoln, Jr.

Cleveland, Ohio, and St. Louis, Mo. Mr. Lincoln joined Air Reduction in 1924 and after sales work in several districts was appointed manager in Pittsburgh, Pa., in 1934. He later moved to New York as regional sales manager in 1938 and has been director of sales services since 1945.

J. C. Garrison, structural engineer, has joined the engineering department of the **Timber Engineering Company.** Mr. Garrison's work will include timber designing, timber testing and sales promotion work.

Percy W. Smith, formerly resident manager of the New York office of the **General Railway Signal Company,** has been appointed eastern manager, New York; **Arthur E. Heimbach,** formerly resident manager of the Chicago office, has been appointed western manager, Chicago; and **Carl D. A. Henze,** formerly assistant resident manager of the Chicago office, has been appointed resident manager. The appointment of **Benjamin P. Wayne** as assistant treasurer, in addition to his present post as secretary, also was announced.

The **Automatic Transportation Company,** Chicago, has announced the organization of **J. M. Barclay, Inc.,** Newark, N. J., as sales representative in New Jersey north of Trenton. The new firm, of which **J. M. Barclay** is president, will be located at 397 Market street, Newark, N. J.

Thomas G. Tynan, formerly assistant manager, has been appointed manager of the Boston, Mass., branch of the **Electric Storage Battery Company,** to succeed **Harry W. Beedle.**

George R. Brockway has been appointed sales manager of the **Rapids-Standard Company.** He was formerly assistant sales manager and central regional sales manager. **Llyod C. Backart,** formerly president and sales manager since in-

corporation of the firm, will continue to serve as chairman of the board. The appointment of **Richard R. Williams** as direct sales representative for the Toledo, Ohio, territory, also was announced.

The **Baltimore Foundry & Machine Corp.** has transferred its sales headquarters from Baltimore, Md., to the firm's parent organization, the **McConway & Torley Corp.**, at Pittsburgh, Pa.

Paul Queneau has been appointed metallurgical engineer of the **International Nickel Company** of Canada, and subsidiaries.

EQUIPMENT AND SUPPLIES

Pakistan Purchasing Mission Expected to Arrive in U. S.

Four officials of the Pakistan government are expected to spend some time in this country on a purchasing mission for the railway division of the Pakistan ministry of communications, according to a recent issue of Foreign Commerce Weekly. The mission will investigate the possibility of obtaining various amounts and types of railroad equipment and consists of Z. H. Khan, secretary, ministry of communications; Mushtaq Ahmed, joint financial adviser (communications); S. M. Nazir, director of supplies, directorate general of supplies and development; and N. A. Qureishy, deputy chief operating superintendent, North Western Railway. Firms and individuals desiring to contact this mission are asked to communicate with the Commercial Secretary, Embassy of Pakistan, 2201 R street N.W., Washington, D. C.

FREIGHT CARS

The **Delaware, Lackawanna & Western** has ordered 500 50-ton hopper cars from the American Car & Foundry Co., for delivery in 1949. Inquiry for this equipment was reported in *Railway Age* of July 10, page 154.

The **National of Mexico** is inquiring for 1,000 50-ton 40½-ft. box and 500 40-ton 40½-ft. stock cars. (See *Railway Age* of July 10, page 154, for other equipment purchases planned by this system.)

The **Mississippi Central** is inquiring for 200 50-ton box cars.

The **St. Louis-San Francisco** has ordered 700 55-ton hopper cars to be built at the Bessemer, Ala., plant of the Pullman-Standard Car Manufacturing Company. Delivery is scheduled for the second quarter of 1949. Inquiry for this equipment was reported in *Railway Age* of June 26, page 134.

The **Seaboard Air Line** has ordered 200 70-ton covered cement hopper cars from the Greenville Steel Car Company. Delivery is scheduled to begin in early 1949. Inquiry for this and other equipment was reported in *Railway Age* of June 19.

The **Virginian** is inquiring for 1,000 55-ton steel hopper cars.

LOCOMOTIVES

The **Texas & Pacific** has ordered six 6,000-hp. Diesel-electric freight locomotives, four 4,500-hp. freight locomotives and one 4,000-hp. passenger locomotive from the Electro-Motive division of the General Motors Corporation. Deliveries of the locomotives, to cost an estimated $5,500,000, will begin in March, 1949.

SIGNALING

The **Baltimore & Ohio** has ordered equipment from the General Railway Signal Company for the installation of an all-relay electric interlocking at Polk street, Chicago. The control machine will be equipped with 29 track indication lights and 44 levers for the control of 16 electric switch machines and 26 signals. Type-B plug-in relays, Type-U color-position-light signals, and welded steel relay cases are included in this order.

The **Electro-Motive Division** of the General Motors Corporation has ordered 28 sets of intermittent inductive train-control equipment from the General Railway Signal Company. These sets will be used on Diesel-electric locomotives as follows: 8 sets for freight switching service on the Southern, 8 for passenger service and 2 for freight service on the Chicago & Eastern Illinois, and 10 for freight service on the Lehigh Valley.

The **Great Northern** has ordered a Type-A 4-lever electric interlocker from the General Railway Signal Company which will control 8 signals and 2 electric switch machines at Scenic, Wash. Type-K relays, Type-D color-light signals, and Model-5D dual control electric switch machines will be used in this installation.

The **Missouri-Kansas-Texas** has ordered from the Union Switch & Signal Co. the necessary materials for signal protection at B.R.I. Junction, near Waxahachie, Tex. The line from the junction to Dallas is used jointly by the Burlington-Rock Island and Katy. The installation involves H-5 searchlight signals, relays, transformers and rectifiers, and a B-10 control panel. Field installation work will be performed by the regular construction forces of the railway.

The **Norfolk & Western** has placed an order with the Union Switch & Signal Co. covering the necessary materials for the installation of an electro-pneumatic interlocking plant at Randolph street, Roanoke, Va. The materials include a 10- ft. Style-C control machine equipped with 96 levers and 384 indication lights, and involve 57 Style-A-5 electro-pneumatic switch movements, with PL-3 position-light signals and all necessary relays, rectifiers, transformers and housings. The field installation work will be handled by the regular construction forces of the railway.

ABANDONMENTS

Evansville Suburban & Newburgh.—The Interstate Commerce Commission has further postponed to July 30 the effective date of its order authorizing this road to abandon its entire line between Evansville, Ind., and Boonville, 18 miles, subject to certain sale conditions.

New York, New Haven & Hartford.—Examiner Robert Romero has recommended in a proposed report that Division 4 of the Interstate Commerce Commission deny this road's application for authority to abandon a branch line extending from Canaan, Conn., to Lakeville, approximately 9.5 miles. The examiner said that although the application is based principally on the ground that revenues from the traffic available, or in prospect, do not warrant the rehabilitation of the branch or its continued operation, present operations are being conducted at "substantial earnings" and prospects for additional increases in traffic are "encouraging." He added that while the branch is in need of some rehabilitation and the rail should be replaced in the future, it nevertheless appears that its operation could continue for several years without major rail replacements or out-of-pocket losses.

New York, New Haven & Hartford.—Examiner Robert Romero has recommended in a proposed report that Division 4 of the Interstate Commerce Commission deny this road's application for authority to abandon a line from Tremont, Mass., to Fairhaven, 15 miles. The application, he said, should be denied without prejudice to its refiling after a year from the date of the commission's order.

The application was based principally on grounds that revenues available or in prospect do not warrant rehabilitation and continued operation of the line. "Operations are being conducted, however, at substantial earnings and prospects for additional increases in traffic are not discouraging," the examiner said. "The line is in need of some rehabilitation, but it does not appear that its operation could not continue for

News Department continued on next left-hand page

Steam trains are making 2,000,000 miles a day

While the spotlight of public attention naturally falls on newest developments, it is sometimes well to back off and take a look at the overall picture.

We're thinking of the steam locomotive. These locomotives are making better than two million train-miles today — and will do it again tomorrow and the next day. They — these steam locomotives — are producing more revenue ton-miles right now than ever before in peacetime history.

Many of these locomotives are old, too old, and have distorted the statistics on performance. Many, however, are modern. And on modern steam power — locomotives that pack 5000 to 9000 horsepower and can stay on the road for 16 and 18 hours, and then turn around in an hour or two — the statistics look pretty good.

We build such modern power — and are convinced that it has its place.

LIMA HAMILTON CORPORATION

DIVISIONS: *Lima, Ohio* — Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio* — Hooven, Owens, Rentschler Co.; Niles Tool Works Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

a year or longer without too large expenditures for maintenance. Continued operation for such a period would afford shippers an opportunity to patronize it to the fullest extent practicable and should definitely show whether or not its abandonment is warranted."

Division 4 of the Interstate Commerce has **authorized:**

Bingham & Garfield. —To abandon its entire line, from Garfield, Utah, to Bingham Canyon, 20.3 miles, in addition to a 2-mile branch line to Sands. All issued and outstanding capital stock of the B. & G. is owned by the Kennecott Copper Corporation, which furnished 98.8 per cent of the traffic handled over the road, and which on May 1 placed in operation a new industrial line to take care of its transportation needs. At the same time, the commission authorized the Denver & Rio Grande Western to acquire and operate a 1.9-mile segment of the B. & G. at Garfield to serve the American Smelting & Refining Co.

New York Central.—To abandon operations over that portion of the West Shore from Manlius, N.Y., to Oran, 2.3 miles, and the lessor to abandon the segment, over which no shipments have been handled since October, 1947.

Illinois Central.—To abandon operations over a line to be abandoned by the Chicago, St. Louis & New Orleans from a point near Coffeyville, Miss., to a point near Grenada, 13.6 miles. At the same time, the commission authorized the lessor to acquire and the I. C. to operate a substitute line to be constructed by the federal government from a point near Coffeyville 11.6 miles to a connection near Grenada with another line extending from Memphis, Tenn., to Grenada. The line to be abandoned, located with the area of a proposed flood-control project, is part of the applicants' line between Jackson, Tenn., and Grenada, where it connects with the main line of the system from Chicago to New Orleans, La.

OVERSEAS

Australia.—The gage standardization of railroads in the states of Victoria, South Australia and New South Wales will begin in 1951, according to a recent issue of Foreign Commerce Weekly. It is expected the program will be completed in 1960 and will cost about 51,000,000 Australian pounds. The cost of the project will be shared equally by the commonwealth and the states. Contributions by the latter will be made in annual payments extending over 50 years. The modernization of locomotives also is contemplated. It is reported the country has 145 types of locomotives, 456 types of passenger-train cars and 756 types of freight cars. (See *Railway Age* of October 6, 1945, page 554, and December 16, 1944, page 926, for a discussion of the gage-conversion program.)

CAR SERVICE

The Interstate Commerce Commission has extended from July 30 to November 15 the expiration date of Revised Service Order No. 434, which restricts free time on box cars held for unloading at Pacific coast ports to a maximum of seven days. The commission also has extended from July 18 to November 17 the expiration date of Revised Service Order No. 558, which pertains to the substitution of refrigeration cars for box cars for fruit and vegetable containers and box shooks from southern Oregon and California to destinations in California.

The Office of Defense Transportation has issued an amendment to Special Direction ODT 18A-2A, effective July 19, so as to reduce from five tiers high to four tiers high the carload loading requirements for shell eggs in wooden or fibreboard containers.

The O.D.T. also has issued an amendment to General Permit ODT 18A, Revised 39B, effective July 20, so as to authorize carload shipments of new fresh harvested Irish potatoes in quantities of not less than 36,000 lbs. from any point in Arizona, California or New Mexico.

CONSTRUCTION

Burlington-Rock Island.—Replacement of a 30-panel, 420-ft. pile trestle bridge has been authorized at a total expenditure of $24,740.

Bessemer & Lake Erie.—This road has awarded a contract for the construction of a concrete dam at Albion, Pa., at an estimated cost of $33,500, to the New Castle Duntile Company, New Castle, Pa.

Long Island.—This road has authorized the construction of a new passenger station at Kings Park, N.Y., at a probable cost of $75,000.

Northern Pacific.—In order to facilitate switching at Northtown, Minn., just west of Minneapolis, this railroad has authorized the rearrangement of the extension to yard "A" and the construction of a new yard office at a cost of approximately $334,000. Track work involves taking up the present east end of the yard and extending the west end together with additional switching heads and miscellaneous tracks—A total of 5.7 mi. of new track, including 51 turnouts—and the removal of 4.8 mi. of the present east end of the yard, involving 41 turnouts, and the relaying and relining of considerable additional trackage. The new track will be principally 100-lb. rail and most of the new switches will be 115-lb. and 131-lb. material. The new yard office will be a concrete block building 43 ft. by 96 ft. containing a large office for yard clerks; private offices for the trainmaster and yardmaster; space for yard crews to make out reports; a boiler room; a locker room; a lunch room; and other facilities. A deep well will be driven for drinking water, heating water, and fire protection. An elevated observation tower will be provided for the yardmaster. McManis Construction Company, St. Paul, Minn., has been awarded the contract for construction of the yard office building. Track work will be done by company forces.

St. Louis-San Francisco.—This road has awarded the following contracts, the approximate expenditures being shown in parentheses: To the Birmingham Tank Company, Birmingham, Ala., for furnishing and erecting two 55,000-barrel Diesel fuel oil storage tanks in connection with new yard and mechanical facilities at Springfield, Mo. ($77,000); to Joseph W. Newton, Springfield, for the construction of a laundry and commissary building in that city ($61,000); and to E. E. Barber, Fort Smith, Ark., for clearing, grubbing and grading in preparation for the laying of coal tracks, near Hackett, Ark. (slightly under $20,000). Company forces will construct the tracks involved in the latter project, the total cost of which will be about $96,000.

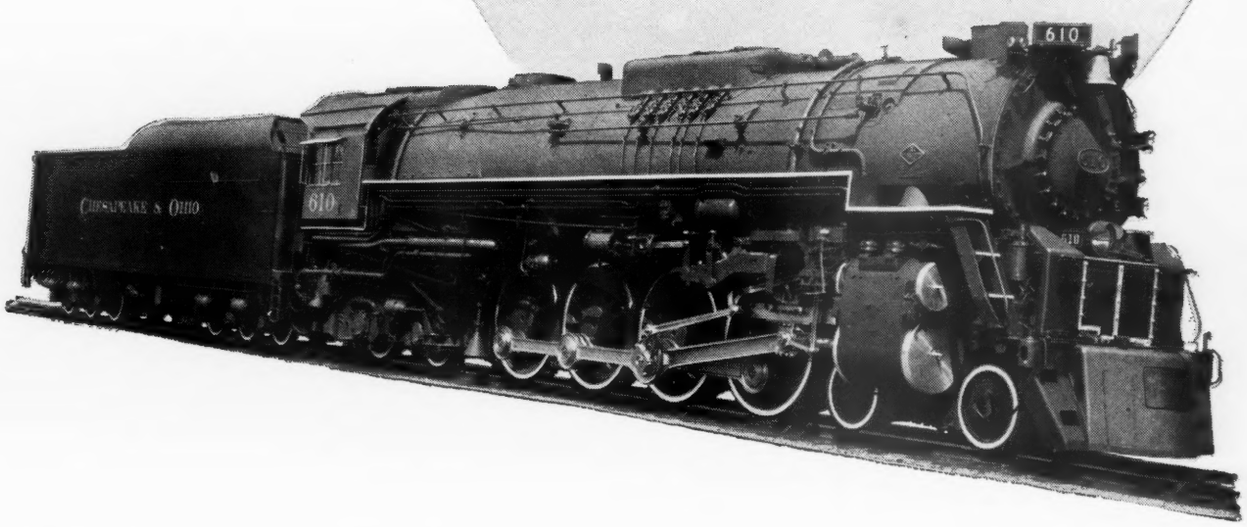
Texas & Pacific.—Modernization of the passenger station at Denton, Tex., at an estimated cost of $41,000 is nearing completion. Bock Construction Company, Dallas, Tex., is contractor. Modernization of the combination freight and passenger station at Gladewater, Tex., at an estimated cost of $30,000, has been commenced by W. Clint Brown, contractor, Longview, Tex. The Southern Builders, Inc., Shreveport, La., are completing the construction of a 40 ft. by 140 ft. car shop building and a 40 ft. by 250 ft. car and lumber shed at the company's Hollywood shops in Shreveport. Both buildings are of galvanized iron construction, with steel frame on concrete foundation, and the cost of the project is estimated at $55,000. The junction of the Texas & Pacific with the Missouri Pacific at Longview is being interlocked by company forces at a cost of $145,000.

Western Pacific.—This road, in cooperation with private contractors, is constructing a new freight depot at Oroville, Cal., costing approximately $36,200, and a 40-ft. by 100-ft. signal department warehouse at South Sacramento, Cal., at a cost of about $35,975. The company's own forces are completing the following projects, the estimated costs of which are shown in parentheses: Extend yard and install 100-ton track scales at Sacramento, Cal. ($33,540); construct a 1,700-ft. siding and scale track and install 100-ton track scales at Kerlinger, Cal. ($22,339); and ex-

News Department continued on next left-hand page

81,800 lb. *Tractive Effort*

FOR PASSENGER SERVICE!



THE Chesapeake and Ohio believes in starting passenger trains fast. This takes tractive effort. And they know, from their experience with more than 200 other Booster-equipped locomotives, that the Booster will give them the extra power needed for prompt get-away.

Consequently the five 4-8-4's being delivered by Lima-Hamilton this month — as well as other new and recently modernized C & O locomotives — are equipped with Boosters. These 4-8-4's have an initial tractive effort of 81,800 lbs. — about the highest we know of for strictly passenger service. The Booster provides 12,400 pounds — or 18% of the starting effort of the main engine.

Equipped with Boosters®

FRANKLIN RAILWAY SUPPLY COMPANY

A CORPORATION

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
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tend siding 2,415 ft., construct 3,040-ft. storage track, install crossovers and rearrange existing tracks at Cordova, Cal. ($63,395).

ORGANIZATIONS

The **Midwest Materials Handling Society** was organized recently at Chicago as a division of the Material Handling Institute, Inc., of Pittsburgh, Pa. The society intends to further the development and use of proper materials handling methods through educational programs and to establish a clearing house for the exchange of ideas among its members covering all phases of the industry. Beginning on September 14, meetings will be held the second Tuesday of each month. The officers are: President, Irving M. Footlik, Ekco Products Company and Illinois Institute of Technology; vice-president, H. E. Lindquist, International Harvester Company Tractor Works; treasurer, J. S. Williams, Jewel Tea Company; and secretary, Raymond Monroe, Modern Materials Handling.

FINANCIAL

Chesapeake & Ohio.— *New Director.*— Walter J. Tuohy, newly elected first vice-president of this company, has been elected a member of the board of directors to succeed Harvey D. Gibson, resigned.

Chicago & Eastern Illinois.—*Annual Report.*—Operating revenues of this road in 1947 were $28,508,455, compared with $24,641,101 in the preceding year. Operating expenses were $24,293,750, compared with $23,639,915. Fixed charges were $653,331, compared with $624,195. Net income was $844,803, compared with a net loss of $517,901. Current assets at the end of the year were $10,901,886, compared with $9,936,136. Current liabilities were $6,597,647, compared with $4,922,453. Long term debt was $27,866,589, compared with $25,971,837.

Chicago & North Western.—*Annual Report.*—Operating revenues of this company last year amounted to $176,281,195, compared with $160,516,750. Operating expenses were $147,815,979, compared with $136,562,753. Fixed charges were $2,368,557, compared with $2,291,234. Net income was $5,055,068, compared with $7,179,832. Current assets at the end of the year totaled $60,569,540, compared with $58,083,106. Current liabilities were $38,891,134, compared with $31,369,127. Long term debt was $173,008,409, compared with $176,026,910.

Lehigh Valley.—*Debt Adjustment Plan.*—The Interstate Commerce Commission has set August 17 as a hearing date on the proposed "Mahaffie Act" debt adjustment plan of this road, as outlined in *Railway Age* of June 26, page 135. The hearing will be held at the commission's Washington, D. C., offices before Examiner J. V. Walsh.

Long Island.—*Annual Report.*—Operating revenues of this road last year amounted to $47,783,139, an increase of $1,619,096 over 1946. Operating expenses were $40,608,831, an increase of $3,927,364. The net loss was $3,996,172, an increase of $2,808,096. Current assets at the end of the year were $12,346,549, an increase of $1,279,633. Current liabilities were $12,120,908, an increase of $3,687,351.

Minneapolis & St. Louis.—*Annual Report.*—Operating revenues of this road last year were $18,377,538, compared with $14,570,115 in 1946. Operating expenses were $13,605,943, compared with $12,739,026. Net income was $1,949,324, compared with $439,288. Current assets at the end of the year were $5,740,116, compared with $4,490,513. Current liabilities were $4,306,320, compared with $2,676,404. Long term debt was $4,937,956, compared with $3,929,897.

New York Central. —*Annual Report.*— Operating revenues of this road in 1947 totaled $703,340,527, compared with $616,784,755 in the preceding year. Operating expenses amounted to $606,536,857, compared with $558,351,493. Fixed charges were $41,518,932, compared with $40,958,739. Net income was $2,306,082, compared with a net deficit of $10,449,268. Current assets at the end of the year were $215,159,258, compared with $216,041,460. Current liabilities were $134,470,739, compared with $114,028,710. Total debt was $854,212,012, compared with $849,222,067.

New York, Chicago & St. Louis-Wheeling & Lake Erie.—*Lease.*—The boards of directors of both of these companies have approved terms under which the Nickel Plate proposes to operate the Wheeling under a 99-year lease. The arrangement will be submitted to stockholders of the two companies for their approved, and then to the Interstate Commerce Commission.

Norfolk & Western.—*Annual Report.*—Operating revenues of this company in 1947 were $165,861,514, an increase of $36,147,418 over the preceding year. Operating expenses were $109,373,838, an increase of $17,039,870. Net income was $35,331,896, an increase of $11,604,220. Current assets at the end of the year were $92,590,581, an increase of $10,711,468. Current liabilities totaled $46,110,352, an increase of $4,999,552. Long term debt totaled $48,016,631, a decrease of $1,766,500.

Reading.—*Annual Report.*—Operating revenues of this company last year totaled $116,760,042, compared with $101,426,120. Operating expenses were $90,894,119, compared with $83,514,547. Fixed charges were $5,335,734, compared with $5,400,458. Net income was $8,215,648, compared with $4,594,490. Current assets at the end of the year amounted to $37,514,624, an increase of $1,629,440. Current liabilities were $27,845,919, an increase of $4,810,579. Long term debt was $95,640,410, a decrease of $2,728,171.

Wabash.—*Annual Report.*—Operating revenues of this company in 1947 amounted to $94,657,837, compared with $80,766,674 in the preceding year. Operating expenses totaled $69,407,447, compared with $65,570,599. Fixed charges were $1,742,133, compared with $2,191,158. Net income was $7,393,273, compared with $3,674,288. Current assets at the end of the year were $41,477,329, compared with $35,854,771. Current liabilities were $28,318,463, compared with $22,606,218. Long term debt was $67,658,795, compared with $70,386,308.

New Securities

Applications have been filed with the Interstate Commerce Commission by:

Missouri Pacific.—To assume liability for $4,700,000 of series KK equipment trust certificates, the proceeds of which will be applied toward the purchase of the following equipment.

	Description and Builder	Estimated Unit Cost
6	4,500-hp. Diesel-electric freight locomotives (Electro-Motive Division, General Motors Corporation)	$460,919
4	3,000-hp. Diesel-electric freight locomotives (Electro-Motive)	309,936
4	1,500-hp. Diesel-electric switching locomotives (Electro-Motive)	131,942
4	4,500-hp. Diesel-electric freight locomotives (Baldwin Locomotive Works)	436,676

The certificates would be dated August 1, sold on the basis of competitive bidding, and mature in 10 annual installments of $470,000, starting August 1, 1949.

Reading.—To assume liability for $3,440,000 of series P equipment trust certificates, the proceeds of which will be applied toward the purchase of the following equipment:

	Description and Builder	Estimated Unit Cost
3	6,000-hp. Diesel-electric road freight locomotives (Electro-Motive Division, General Motors Corporation)	$605,000
15	1,000-hp. Diesel-electric switching locomotives (Baldwin Locomotive Works)	94,850
8	M.U. suburban passenger electric motor cars (American Car & Foundry Co.)	136,429

The certificates would be dated September 1, sold on the basis of competitive bidding and mature in 20 semi-annual installments of $172,000, starting March 1, 1949.

New York, New Haven & Hartford.—To assume liability for $4,050,000 of equipment trust certificates, the proceeds of which will be applied toward the purchase of 36 Diesel-electric locomotives from the American Locomotive Company at an estimated total cost of $5,400,000. The equipment, together with estimated unit prices, includes 15 2,000-hp. Diesel-electric road passenger-freight locomotives, at $205,000; 7 1,500-hp. Diesel-electric road switching

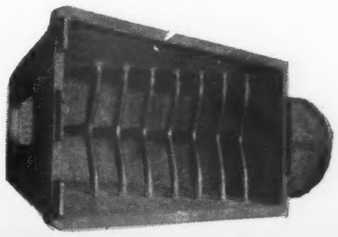
News Department continued on next left-hand page

THERE ARE IMPORTANT *PLUS* ADVANTAGES

ORIGINALLY developed to support a 100% brick arch in the locomotive firebox, actual road experience has shown that Security Circulators, installed in new or existing motive power, yield important plus advantages.

Adding an effective evaporating surface right in the path of the hot gases, Security Circulators enable the locomotive to get up steam more rapidly. Quickening the circulation of water from the side water-legs to the crown sheet, Security Circulators aid in maintaining maximum boiler output.

Definitely lessening honeycombing, flue plugging and cinder cutting, Security Circulators increase locomotive availability and reduce boiler maintenance.



SECURITY CIRCULATOR DIVISION

AMERICAN ARCH COMPANY INC.

NEW YORK • CHICAGO

locomotives, at $160,000; 2 1,000-hp. Diesel-electric road switching locomotives at $122,500; and 12 660-hp. Diesel-electric switching locomotives, at $80,000. The certificates, to be sold on the basis of competitive bidding, would be dated August 1 and would mature in 15 annual installments of $270,000, starting August 1, 1949.

Division 4 of the I.C.C. has **authorized:**

Chicago & North Western.—To assume liability for $5,340,000 of 2⅜ per cent equipment trust certificates, the proceeds of which will be applied toward the purchase of equipment estimated to cost $6,690,000, as outlined in *Railway Age* of June 5, page 88. The certificates will be dated August 1 and will mature in 15 annual installments of $356,000, starting August 1, 1949. The report also approves a selling price of 99,409 with a 2⅜ per cent interest rate, the bid of Harris, Hall & Co., and associates, on which basis the average annual cost will be approximately 2.46 per cent. The certificates were reoffered to the public at prices yielding from 1.4 per cent to 2.65 per cent, according to maturity.

Louisiana & Arkansas.—To assume liability for $1,760,000 of series C equipment trust certificates, the proceeds of which will be applied toward the purchase of equipment estimated to cost $2,200,296, as outlined in *Railway Age* of June 26, page 138. The certificates will be dated July 1 and will mature in 20 semi-annual installments of $88,000, starting January 1, 1949. The report also approves a selling price of 100.15 with a 2⅝ per cent interest rate, the bid of Halsey, Stuart & Co., on which basis the average annual cost will be approximately 2.59 per cent. The certificates were reoffered to the public at prices to yield from 1.45 per cent to 2.70 per cent, according to maturity.

Louisville & Nashville. To issue $30,000,000 or first and refunding mortgage 3¾ per cent series H bonds, to be exchanged for a like amount of series C 4½ per cent first and refunding mortgage bonds now held in the applicant's treasury, the proceeds of which will be used to reimburse its treasury for expenditures made or to be made for capital purposes and for working capital. The series H bonds will be dated April 1 and will mature April 1, 2003. They will be redeemable as a whole or in part on any interest-payment date to and including April 1, 1955, at 105; thereafter to and including April 1, 1998, at a reduction of one-half of 1 per cent for each five-year period, and thereafter at par, with accrued interest applicable in each case. They also will be redeemable for sinking fund purposes at 102 if redeemed on any April 1 from 1950 to and including April 1, 1953, decreasing gradually each five years thereafter to 100¼ if redeemed on any April 1 between 1994 and 1998, inclusive, and thereafter to maturity at par, with accrued interest also applicable in each case.

The report also approves a selling price of 98.26991 with a 3¾ per cent interest rate, the bid of Halsey, Stuart & Co., on which basis the average annual cost will be approximately 3.83 per cent.

Average Prices Stocks and Bonds

	July 20	Last week	Last year
Average price of 20 representative railway stocks	48.53	51.57	49.99
Average price of 20 representative railway bonds	90.86	91.74	90.04

RAILWAY OFFICERS

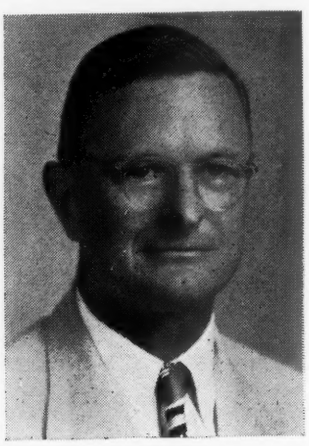
EXECUTIVE

Charles E. Johnston, whose retirement as chairman of the Western Association of Railway Executives, at Chicago, was reported in *Railway Age* of July 3, was born on October 30, 1881, at St. Elmo., Ill. Mr. Johnston first entered railway service as an office boy and call boy on the Chicago & Eastern Illinois in 1897, and subsequently served with the St. Louis Southwestern in successive positions as chainman, rodman and transitman. He returned to the C. & E. I. in its engineering department in 1899, and in the following year he joined the St. Louis & San Francisco (now St.L.-S.E.) as assis-

Charles E. Johnston

tant engineer, maintenance of way. He also served for a time as resident engineer of the Missouri Pacific, later entering the service of the Kansas City Southern as locating engineer. Mr. Johnston subsequently served the K. C. S. as office engineer, division engineer, chief engineer and general manager. He was advanced in 1924 to vice-president and general manager, and in 1928 was further elevated to the presidency of the K. C. S. In 1939 he became chairman of the Western Association of Railway Executives, the post he held at the time of his retirement.

Dwight B. Ohrum, whose promotion to secretary and assistant to executive vice-president of the Texas & Pacific, at Dallas, Tex., was reported in *Railway Age* of July 3, was born on July 15, 1892, at Delta, Pa., and received his degree in railway civil engineering at the University of Illinois in 1918. He began his railroad career in 1914 as a file clerk in the chief engineer's office of the Mobile & Ohio (now Gulf, Mobile & Ohio), at Mobile, Ala. Fol-



Dwight B. Ohrum

lowing military service during World War I, Mr. Ohrum served as clerk and instrumentman of the Union at Memphis, Tenn., and later joined the engineering department of the T. & P. at Dallas as a draftsman. He advanced successively to traveling accountant, contract assistant to operating vice-president, and assistant secretary and chief clerk to executive vice-president. He was serving in the latter positions at the time of his recent appointment.

Daniel A. Lindley, executive vice-president of the Canton railroad, has been elected president of the road, with headquarters as before at Baltimore, Md., succeeding the late **O. H. Nance.**

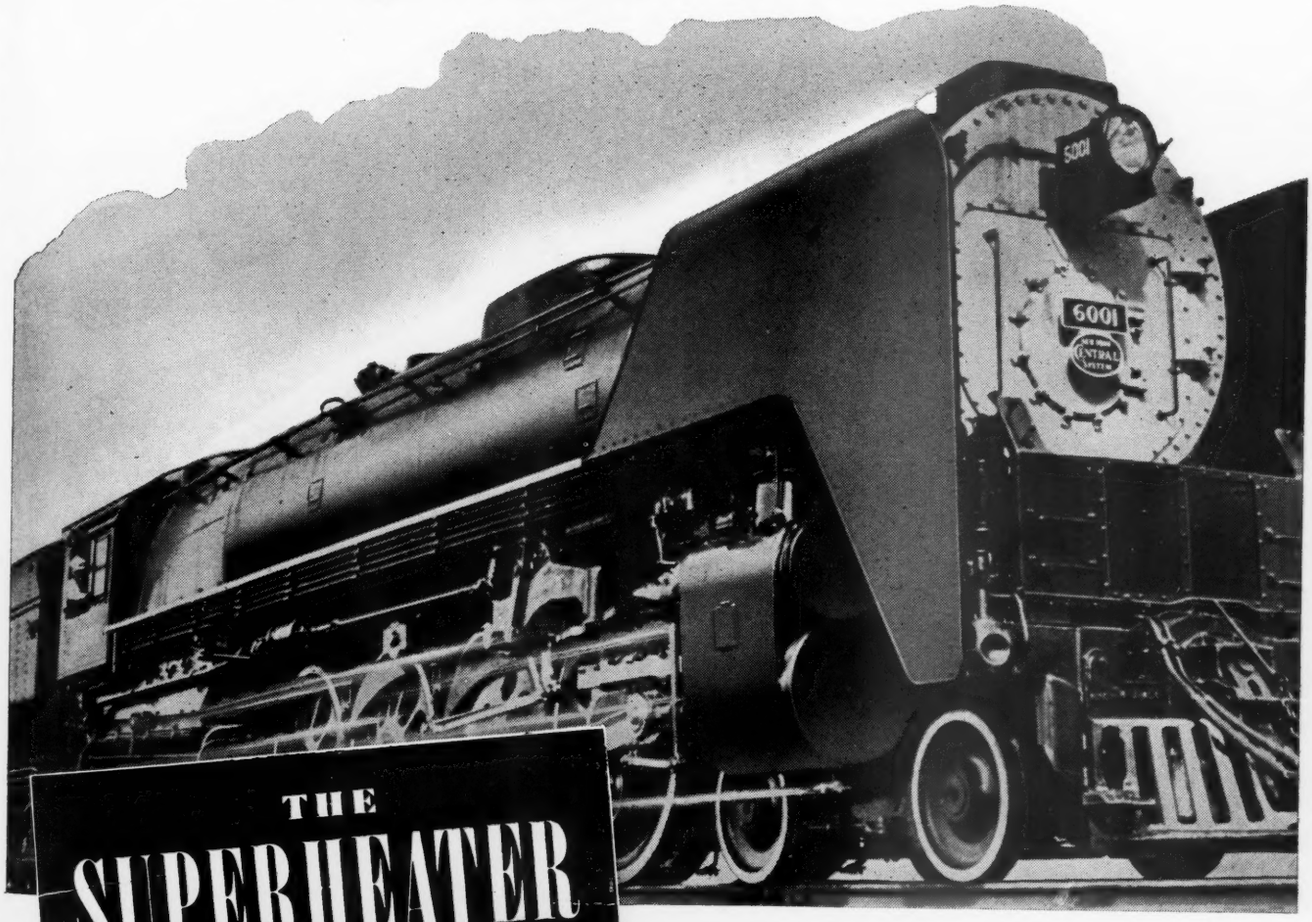
The board of directors of the Chesapeake & Ohio has elected **Walter J. Tuohy** first vice-president, with full authority over the operations of the company in the absence of the president, subject to direction of the board and the chairman. Mr. Tuohy, who has been vice-president—coal traffic and development since 1943, will continue to have headquarters at Cleveland, Ohio.

J. W. Corbett, general manager of the Southern Pacific, at San Francisco, Cal., has been appointed vice-president in charge of operations, succeeding the late Leslie B. McDonald.

Frank S. Austin, manager of purchases and stores of the New York Central system, has been appointed vice-president, purchases and stores, with headquarters as before at New York. Mr. Austin was born at Lynn, Mass., on November 6, 1886, and attended Dartmouth College and Thayer School of Civil Engineering. Entering railroad service on May 31, 1909, as chairman with the Boston & Albany (N.Y.C. lessee), Mr. Austin served successively

News Department continued on next left-hand page

The AMERICAN RAILWAYS ARE PROGRESSIVE . . . as demonstrated at CHICAGO RAILROAD FAIR, July 20th to September 6th



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Modern motive power is a factor in this progressiveness . . . and this Company has contributed much to the modern locomotive.

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as rodman, transitman, and in charge of party surveys until 1910, when he was appointed assistant supervisor of track, becoming supervisor of track three years later. Mr. Austin became general storekeeper at West Springfield, Mass., in 1917 and ten years later he

Frank S. Austin

was appointed purchasing agent at Boston, Mass. In 1935 he became assistant purchasing agent of the New York Central at New York, being appointed purchasing agent on August 1, 1940, and general purchasing agent on December 1, 1944. He became manager of purchases and stores at New York in August, 1946.

L. L. White has been elected executive vice-president of the New York, Chicago & St. Louis and the Wheeling & Lake Erie, effective August 1. Mr. White has been vice-president—operation of the Chicago & North Western since that property was restored to corporate management.

Emil Von Bergen, whose retirement as assistant to vice-president and general manager of the Illinois Central, at Chicago, was reported in *Railway Age* of July 10, was born at Tracy City, Tenn., on April 19, 1882, and entered service with the I. C. as locomotive fireman in 1901. He was promoted to locomotive engineer in 1904; to traveling engineer, with headquarters at Memphis, Tenn., in 1918; to lubrication engineer at the same point in 1922; to general air brake and lubrication engineer, with headquarters at Chicago, in 1923; and was advanced to the position he held upon retirement on January 1, 1938. Mr. Von Bergen played an active part in the design of the company's multiple-unit electric suburban cars, and served on the Association of American Railroads' committee which handled the automatic train control investigation, and later, the mechanical stoker case. Upon his retirement Mr. Von Bergen purchased an active partnership in the W. H. Monsarrat Company, real estate, insurance and mortgage firm, at Memphis, Tenn., where he will make his home.

At meetings of the boards of directors of the Atlantic Coast Line and the Louisville & Nashville in New York on July 15, **A. Lee M. Wiggins,** who recently resigned as Under Secretary of the U. S. Treasury, was elected a director and, effective September 1, chairman of the board of directors of both companies, to succeed **Frederick B. Adams,** who will continue as chairman of the executive committee of both corporations. Mr. Adams has been a director since 1914 and chairman for the past four years. Mr. Wiggins was graduated from the University of North Carolina with an A.B. degree in 1913 and has received the honorary degree of LL.D from that university and the University

A. Lee M. Wiggins

of South Carolina. In 1940 he was awarded a certificate of merit for distinguished service to agriculture by Clemson Agricultural College. Mr. Wiggins for many years has been a lecturer at the Graduate School of Banking at Rutgers University. He is a former president of the American Bankers Association. He became Under Secretary of the Treasury in January, 1947. He is treasurer of the American National Red Cross. He will maintain offices in both Hartsville, S.C., and New York.

FINANCIAL LEGAL and ACCOUNTING

Thomas Kearns, whose retirement as auditor of freight and passenger accounts of the Western Pacific, with headquarters at San Francisco, Cal., was reported in *Railway Age* of June 19, was born at Modale, Iowa, on December 15, 1881. Mr. Kearns began his railroad career in 1897 as a messenger with the Chicago, Burlington & Quincy, later serving as telegrapher and agent of that road and as telegrapher of the Southern Pacific, agent of the Butte County Railroad and clerk on the S. P. and the Arizona Eastern. He was appointed traveling auditor of the S. P. in 1909, and, in the following year, he became general agent of the Central California Traction Company. From 1911 to 1927, Mr. Kearns served as auditor of freight and passenger accounts of the Oakland, Antioch & Eastern. He joined the W. P. in 1927 as assistant auditor of freight and passenger accounts at San Francisco, advancing in 1930 to auditor of freight and passenger accounts, the position he held at the time of his retirement.

John Lansdale, whose retirement as valuation engineer and tax commissioner of the Southern Pacific Lines, at Houston, Tex., was reported in *Railway Age* of June 12, was born on June 24, 1882, at Triadelphia, Md. Mr. Lansdale entered service in 1906 with the Tonopah & Goldfield, serving successively until 1910 as rodman, draftsman, transitman and assistant engineer, maintenance of way. He joined the Southern Pacific in 1910 as assistant engineer at San Francisco, and in 1912 he accepted a similar position with the Los Angeles & Salt Lake (now part of the Union Pacific). From 1913 to 1917 he was assistant engineer in charge of valuation of the Pacific Electric, at Los Angeles, Cal. Following army service during World War I, Mr. Lansdale returned to the P. E. as assistant engineer, and in 1919 he entered the service of the S. P. Lines in Texas and Louisiana as valuation engineer. In 1926 he was appointed valuation engineer and tax commissioner, the positions he held at the time of retirement.

John R. Barrett, whose retirement as auditor of freight accounts of the St. Louis Southwestern at St. Louis, Mo., was reported in *Railway Age* of July 3, was born on September 5, 1873, at Sedalia, Mo. Mr. Barrett began his railroad career in 1890 with the Missouri-Kansas-Texas, serving successively at Parsons, Kan., Denison, Tex. and St. Louis. He later worked for the Choctaw, Oklahoma & Gulf (now part of the Chicago, Rock Island & Pacific), advancing to traveling auditor at Little Rock, Ark. Mr. Barrett subsequently rejoined the Katy as a clerk and advanced to the position of traveling auditor. He began service with the Cotton Belt in 1905 as a clerk in the accounting division, holding various positions until 1931, when he was appointed auditor of freight accounts, the position from which he has retired.

OPERATING

W. G. Pfohl, division engineer of the Maryland division of the Pennsylvania at Baltimore, Md., has been appointed assistant superintendent freight transportation of the Central region at Pittsburgh, Pa., succeeding **T. M. Goodfellow,** whose appointment as superintendent of the Delmarva division at Cape Charles, Va., was reported in *Railway Age* of July 3, page 42. **F. C. Wilkinson,** superintendent assigned to special duty in the office of the vice-president in charge of operation, has been appointed assistant

News Department continued on next left-hand page

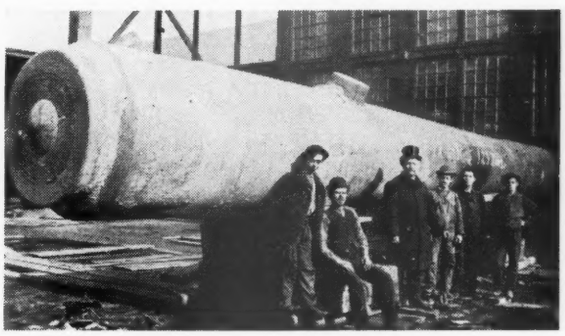
Program Footnote to the
CHICAGO RAILWAY PAGEANT

In the Pageant you will see a notable array of locomotives past and present, owned by a blue-ribboned cross section of America's great railroads. Great contrasts exist between early and later types of these iron horses. Yet, more than likely, many of them have one important thing in common; certain vital parts cast from Hunt-Spiller *Air furnace* Gun Iron. For the majority of the more important railroads have depended upon this superior material for many, many years.

Hunt-Spiller Gun Iron has a history of unusual interest as, indeed, the very name suggests. It stems from the founding of this company almost coeval with that of the Republic itself. On the very site in South Boston where the same iron is poured today, Cyrus Alger invented an iron of such unusual attributes that ordnance experts specified it for all types of cannon. From 1812 until far past the Civil War, Alger and his successors cast a great many guns including that of the famous Monitor, victor over the Merrimac.

Since locomotives required iron of high quality for bushings, valves, pistons, and other parts, it was discovered rather early that "gun iron" was ideal for these purposes. So, although guns are no longer made from iron, "gun iron" remains as a hall mark of quality.

In the past few years great changes have taken place in the character of railroad motive power. The Diesel-electric locomotive is more and more in evidence, yet here too, Hunt-Spiller Gun Iron fits naturally into the picture. Just as it is a better material for valve and cylinder bushings of steam locomotives, so has it been found superior for the equivalent cylinder liners and piston rings of Diesel engines. All honor to you, Cyrus Alger; you built better than you realized!



Not for more than a man's lifetime have top hats and 12-inch, 123-ton cannon been seen in the Hunt-Spiller foundry, but the same pride and care for quality goes into every casting made today.

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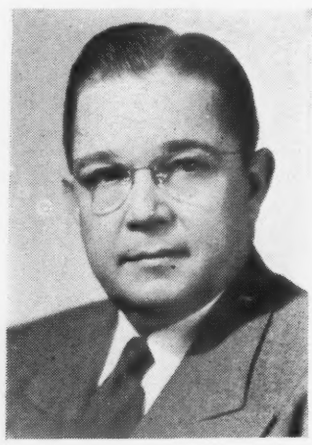
chief engineer, with headquarters as before at Philadelphia, Pa.

Mr. Wilkinson was born near La Mira, Belmont county, Ohio, on March 18, 1883. After attending public and high schools at Morristown, Ohio, Mr. Wilkinson taught school for two years at Uniontown, Ohio, after which he entered Ohio State University at Columbus, being graduated with the degree of civil engineer in 1907. During Mr. Wilkinson's college vacation periods, he worked at Wheeling, W. Va., for the Wheeling Terminal, at that time a subsidiary of the Pennsylvania. His continuous service with the P.R.R. dates from August 7, 1907, when he became assistant on the engineering corps of the Cleveland & Pittsburgh, a subsidiary of the P.R.R. One month later he became assistant engineer of the Wheeling Terminal and on September 1, 1917, assistant superintendent of the Waynesburg & Washington (a P.R.R. subsidiary). From July, 1920, to June, 1928, he worked in various

F. C. Wilkinson

transportation offices of the Central region of the P.R.R. at Pittsburgh, Pa., and in June, 1928, he became assistant trainmaster of the Allegheny division transferring to the Buffalo division in January, 1929. On February 6, 1930, he was appointed trainmaster on special duty in the office of the chief engineer at Philadelphia and on February 1, 1932, he became superintendent of the Logansport division at Logansport, Ind. Mr. Wilkinson returned to his former position of trainmaster on special duty in the office of the chief engineer at Philadelphia on June 16, 1932, again becoming superintendent of the Logansport division on July 1, 1933. On April 1, 1935, he was appointed superintendent on special duty in the office of the vice-president in charge of operation, where he remained until his recent promotion.

E. W. Torian, whose promotion to superintendent of the Texas & New Orleans (part of the Southern Pacific Lines), at Lafayette, La., and New Orleans, was reported in *Railway Age* of June 12, was born on May 24, 1905, at Lafayette. Mr. Torian received his college education at the Rice Institute in Houston, Tex., and the University of Texas at Austin, and was graduated by the South Texas School of Law in Houston in 1928. He began his railroad career in 1923, when he worked during the summer months as a machinist helper with the T. & N. O. at Houston,



E. W. Torian

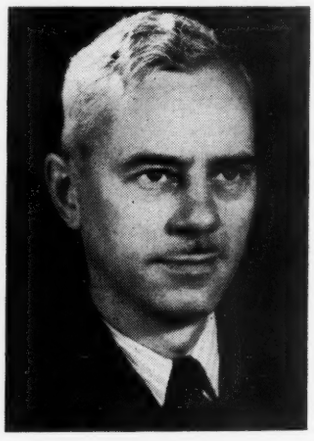
and in the summer of 1925 he served as apprentice clerk in the road's stores department. He began continuous service with the T. & N. O. in 1926, serving in various capacities in the stores department, as accounting department clerk, assistant chief clerk to superintendent, assistant yardmaster and yardmaster. Mr. Torian was advanced to assistant terminal trainmaster in 1937 and was transferred to Lafayette in 1941 as trainmaster. In 1943 he became assistant superintendent, which post he held at the time of his recent promotion.

The Railway Express Agency has announced the following personnel changes: **J. J. Donovan,** superintendent of the Central Illinois division, at Chicago, has been appointed superintendent of the Western Illinois-Eastern Iowa division, also at Chicago, succeeding **R. B. Smith,** who has retired after 48 years of service; **J. A. Papa,** appointed superintendent of the Central Illinois division, succeeding Mr. Donovan; **Edward E. Marshall,** who has served during the past year on the vice-president's staff at Chicago, appointed superintendent of the Indiana division, at Indianapolis, Ind., succeeding **J. A. Jakes,** who has been transferred to Chicago as superintendent of the Terminal division there; **Anson G. Smith,** superintendent of the Terminal division, at Chicago, transferred to Cincinnati, Ohio, as superintendent of the Southern Ohio division, succeeding **J. W. Johnson,** who has retired after more than 52 years of service; and **William C. Searight,** terminal agent at Cleveland, Ohio, advanced to superintendent of the Montana division, at Spokane, Wash., succeeding **W. G. Watkins,** who has retired following 44 years of service with the company.

J. A. Lambert, assistant superintendent of the Levis division of the Canadian National at Levis, Que., has been promoted to superintendent of the Laurentian division at Quebec, Que., succeeding **J. L. St. Onge,** who has been appointed superintendent of terminals at Quebec. **A. A. Audet,** freight agent at Quebec, has been appointed assistant superintendent at Levis, succeeding Mr. Lambert.

Leonard H. Hale, superintendent of the Denver & Rio Grande Western's Alamosa (Colo.) division, has been promoted to superintendent of transportation, with headquarters at Denver, Colo., succeeding **W. R. McPherson,** who has retired after a railroad career of 57 years. Mr. Hale is replaced by **E. B. Herdman,** Pueblo division superintendent at Denver, who in turn is succeeded by **L. T. Wright,** superintendent at Grand Junction, Colo. **G. B. Aydelott,** assistant to chief mechanical officer, has been promoted to superintendent at Grand Junction.

Howard Charles Grayston, general supervisor of car service of the Canadian National, has been appointed chief of car service, with headquarters at Montreal, Que., succeeding **W. A. Kirkpatrick,** who has retired after nearly half a century of railway service. Mr. Grayston was born at Wimbledon, London, England, in 1901 and began his



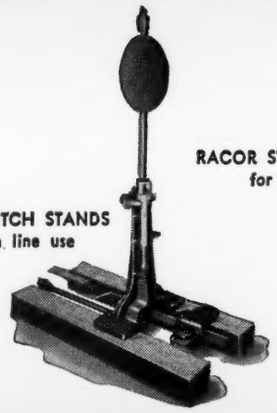
Howard Charles Grayston

railway service as a clerk with the Canadian Northern (now Canadian National) at Toronto, Ont., in 1916.

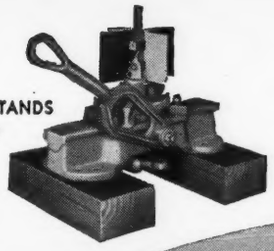
Mr. Kirkpatrick was born at West Lorne, Ont., in 1883 and began his railroad career as a clerk in 1898. He joined the Canadian Northern in 1905 as operator and dispatcher at Port Arthur, Ont.

R. E. Hallawell was appointed general manager of the Southern Pacific at San Francisco, Cal., on July 15. **V. M. Petterson** was appointed assistant general manager at San Francisco, filling

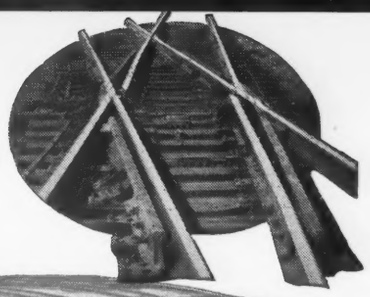
News Department continued on next left-hand page



RACOR SWITCH STANDS
for main line use



RACOR SWITCH STANDS
for yard use



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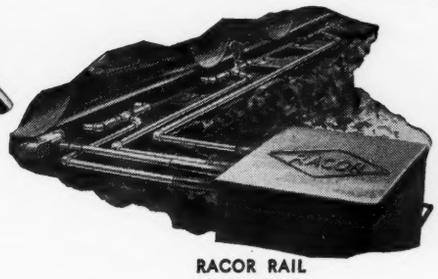

RACOR RAIL
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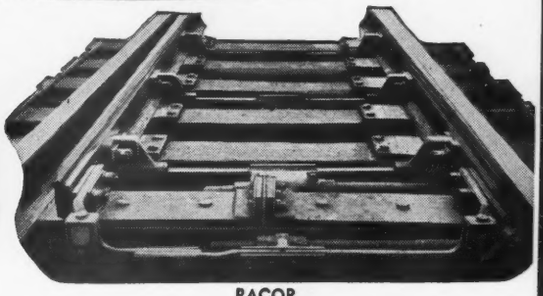

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the vacancy created by Mr. Hallawell's promotion. **P. D. Robinson,** superintendent of transportation at San Francisco, succeeded Mr. Petterson as superintendent of the Rio Grande division at El Paso, Tex.

H. E. Rock has been appointed superintendent of terminals of the St. Louis-San Francisco, with headquarters at Tulsa, Okla..

W. H. Kendall has been appointed staff assistant of the Atlantic Coast Line, Wilmington, N. C.

TRAFFIC

Harry L. Schaeffer, general freight traffic manager of the Missouri Pacific Lines at St. Louis, Mo., has been promoted to chief traffic officer, succeeding **Eugene Mock,** who has retired after more than 50 years of railroad service. Succeeding Mr. Schaeffer is **C. L. Butler,** assistant freight traffic manager. Other important M. P. traffic changes which became effective on July 1 are: **R. J. McDermott,** vice-president and general manager of the M. P. Transportation Company (wholly-owned bus subsidiary), appointed general passenger traffic manager of the M. P.; **R. T. Oliver,** assistant traffic manager at Chicago, promoted to assistant freight traffic manager at St. Louis; **J. S. Smith,** general freight agent—rates, appointed assistant freight traffic manager—rates and divisions **H. C. Westbrook,** general freight agent—sales at St. Louis, promoted to assistant traffic manager at Chicago; **C. J. Bindner,** general freight agent—rates and division, appointed general freight agent to handle Western Trunk Line Committee and Trans-Continental Freight Bureau rate matters; and **W. J. Boewer,** traffic assistant, research department, advanced to general freight agent to handle rate litigation before the Interstate Commerce Commission. **I. G. Miller,** formerly passenger traffic manager, has been transferred to San Francisco, Cal., as general passenger agent in charge of the road's Pacific Coast agencies, including Phoenix, Ariz. **M. P. Eckman,** freight traffic manager, and **C. C. Hahne,** assistant freight traffic manager, continue in charge of solicitation.

T. H. Young, general agent of the Chesapeake & Ohio at Washington, D. C., has retired after nearly 28 years of service with that road.

J. B. Dorrance, Jr., general passenger agent of the Pennsylvania at Washington, D. C., has been transferred to Pittsburgh, Pa., succeeding **A. B. Smith,** who has been granted a leave of absence at his own request because of ill health. **J. V. Sowers,** assistant general passenger agent at St. Louis, Mo., succeeds Mr. Dorrance at Washington. **Charles R. James,** division passenger agent at Philadelphia, Pa., has been appointed assistant general passenger agent at St. Louis, Mo., succeeding Mr. Sowers. **Merrill B. Winn,** division passenger agent at Indianapolis, Ind., succeeds Mr. James at Philadelphia. **Edward V. Struble,** division passenger agent at St. Louis, has been transferred to Indianapolis. **Frank J. Roth,** division passenger agent at Columbus, Ohio, has been transferred to St. Louis. **C. W. Linker,** district passenger agent at Atlanta, Ga., has been transferred to Pittsburgh, Pa., succeeding **C. S. Herr,** who succeeds Mr. Roth at Columbus. **H. C. Brinsden,** passenger representative at Detroit, Mich., succeeds Mr. Linker at Atlanta.

Mr. Sowers was born at Boswell, Ind., and received a college and business school education in Indiana. He entered the service of the Pennsylvania at Terre Haute, Ind., on December 1, 1913, and after serving as agent and telegraph operator he entered the U. S. Army Air Service during World War I. Returning to the P.R.R. on May 6, 1919. Mr. Sowers was employed at various midwestern points, becoming traveling passenger agent at Denver, Colo., in 1922. He later served in Los Angeles, Cal., and Dallas, Tex., and thereafter was division passenger agent at Cleveland, Ohio; Cincinnati and New York. In May, 1940, he was advanced to assistant general passenger agent of the Long Island. Mr. Sowers was appointed assistant general passenger agent at St. Louis on May 16, 1941, which position he held until his recent appointment.

H. Newhall Tukey, assistant to the freight claim agent of the Maine Central and the Portland Terminal, has been appointed freight claim agent at Portland, Me., succeeding **Merrill C. Manning,** who has retired after 45 years of service with the Maine Central, 24 of which have been as freight claim agent. Mr. Tukey started his railroad service with the Maine Central on August 20, 1920, as a clerk in the office of the auditor of passenger accounts. In 1928 he was promoted and transferred to the freight claim bureau and in 1946 he was advanced to assistant to the freight claim agent.

B. S. Liberty has been appointed district freight agent of the Canadian National at Ottawa, Ont. Mr. Liberty has been on loan to the Canadian Department of Transport since 1940.

George C. Bauer, assistant general coal freight agent of the Baltimore & Ohio at Cleveland, Ohio, has been promoted to general coal freight agent, with the same headquarters, a new position. **S. S. McKinlay,** coal freight agent at New York, has been appointed general coal freight agent at Pittsburgh, Pa., succeeding **H. O. Bias,** resigned. **R. A. Lentz,** coal freight agent at Chicago, has been transferred to New York, succeeding Mr. McKinlay. **S. G. Alexander,** coal traffic representative at Chicago, has been promoted to coal freight agent, with the same headquarters. **W. F. Deets,** coal traffic representative at Baltimore, has been appointed coal freight agent at Detroit, Mich., a new position. **C. H. Norris,** coal traffic representative at Cleveland, has been promoted to coal freight agent, with the same headquarters, a new position.

Robert C. Duffin, whose promotion to freight traffic manager of the Missouri-Kansas-Texas at St. Louis, Mo., was reported in *Railway Age* of July 3, was born at St. Louis, and received his higher education at Washington University, St. Louis. He entered the service of the Katy in 1924 as an office boy, and served six years thereafter in various clerical positions. In September, 1930, he was appointed quotation clerk

Robert C. Duffin

in the St. Louis freight office, and subsequently served in various capacities in that department and in the freight department at Kansas City, Mo. He was appointed general agent at Detroit, Mich., in 1945, and foreign freight traffic manager at St. Louis in May, 1947. Mr. Duffin was serving in the latter post at the time of his new appointment.

John W. Scott, Jr., chief clerk in the office of vice-president—traffic of the Kansas City Southern Southern Lines, with headquarters at Kansas City, Mo., has been promoted to executive general agent at Beaumont, Tex., succeeding **R. E. Carter,** who has resigned to engage in other business.

H. S. Stark has retired as assistant general freight agent of the Chesapeake & Ohio, with headquarters at Chicago.

V. C. Knorst has been appointed assistant to foreign freight traffic manager of the Missouri Pacific Lines, with headquarters at St. Louis, Mo.

Frank H. Smith, division and passenger agent of the Atchinson, Topeka & Santa Fe at Stockton, Cal., has been appointed division freight agent at Fresno, Cal., succeeding **Grover E. Harrison,** who has retired.

D. E. Ingman, freight service agent of the Union Pacific, has been promoted

to freight service manager, with headquarters at Omaha, Neb., having jurisdiction over the road's eastern district, extending from Omaha and Kansas City, Mo., westward to Ogden, Utah.

Orrville C. Warrenfelt has been appointed freight traffiic agent of Chicago, Indianapolis & Louisville at Indianapolis, Ind., having previously served as chief clerk in the Monon's Indianapolis freight traffic office.

Ralph E. McGlothlen, formerly general agent for the St. Louis Southwestern at Phoenix, Ariz., was promoted to general agent at San Francisco, Cal., effective July 15. **C. C. Hamby,** formerly commercial agent at Los Angeles, Cal., has succeeded Mr. McGlothlen at Phoenix.

Walter F. Smith, whose promotion to southern traffic manager of the Chicago, Indianapolis & Louisville, at Indianapolis, Ind., was reported in *Railway Age* of July 17, was born on April 7, 1902, at New Albany, Ind. Mr. Smith entered the service of the Monon in 1923 as a bill clerk in the local freight office at Indianapolis, and subsequently held several clerical positions. He was appointed freight traffic agent at Indianapolis in 1926; commercial agent at Atlanta, Ga., in 1929; commercial agent at New York in 1930, and general agent at Milwaukee, Wis., in 1932. Following military service during World War II, Mr. Smith returned to the Monon as general agent at Milwaukee in 1946, shortly thereafter was promoted to assistant general freight agent at Chicago. He was further advanced to general freight agent at the latter point in 1947, which post he held at the time of his recent appointment.

John M. Budd, president of the Chicago & Eastern Illinois, has announced that the road will open a joint freight and passenger office in Los Angeles, Cal., in charge of **Louis E. Kilmer,** who is now general agent at that point.

MECHANICAL

F. H. Green, road foreman of equipment of the Denver & Rio Grande Western at Salida, Colo., has been promoted to assistant superintendent of air brakes, with headquarters at Denver, Colo.

W. E. Hughes, road foreman of engines of the Canadian National, has been appointed division master mechanic at London, Ont., succeeding **J. McMurtry,** who has retired on pension after many years of service.

Thomas Patrick Irving, engineer of car construction of the Advisory Mechanical Committee of the Chesapeake & Ohio, with headquarters at Cleveland, Ohio retired on July 1 after 47 years of service. Born at Susquehanna, Pa., in February, 1883, Mr. Irving was graduated from Laurel Hill Academy at Susquehanna in 1901, where he majored in mechanical and architectural drawing. He began his railroad career in July, 1901, as a mechanical draftsman, locomotive and car, for the Erie at Susquehanna, transferring to Meadville, Pa., a year later. From August 1, 1902, to January, 1, 1928, he held such positions as draftsman, assistant chief draftsman, chief draftsman, and assistant mechanical engineer of the Erie. In November, 1929, when the Advisory Mechanical Committee was organized, Mr. Irving was appointed engineer of car construction for the Erie, the C.

Thomas Patrick Irving

& O., the Pere Marquette and the Nickel Plate. Since then he has been instrumental in supervising the construction of freight and passenger cars. Dur- World War II, Mr. Irving served briefly in the War Production Board at Washington, D. C. He has been chairman of the Car Construction Committee, Mechanical Division of the A.A.R. since 1941.

PURCHASES and STORES

E. R. Brinton, general storekeeper of the Chicago Great Western at Oelwein, Iowa, has been granted an indefinite leave of absence due to ill health. Mr. Brinton has held his present position since 1934, having been acting general storekeeper for one year prior to that time. **H. G. Streight** has been appointed acting general storekeeper with headquarters at Oelwein, Iowa.

A. L. Prentice, general purchasing agent of the New York Central system, has been appointed manager of purchases and stores, with headquarters as before at New York, succeeding **Frank S. Austin,** who has been appointed vice-president, purchases and stores.

Stanley R. Proffitt, whose retirement as purchasing agent of the Western Pacific, at San Francisco, Cal., was reported in *Railway Age* of June 19, was born in 1882, at Raymond, Kan., and received his higher education at Missouri State College, Springfield, Mo. He entered railroad service as a section laborer with the Atchison, Topeka & Santa Fe, and from 1902 to 1909 he held various clerical positions with the St. Louis-San Francisco. Joining the W. P. in 1909, he served as chief clerk to several different officers until October, 1943, when he was appointed assistant purchasing agent. In January, 1944, Mr. Proffitt was advanced to purchasing agent, the position he held at the time of his retirement.

ENGINEERING and SIGNALING

Lawrence J. Verbarg, whose appointment as electrical engineer of the Missouri Pacific Lines, at St. Louis, Mo., was reported in *Railway Age* of June 12, was born at St. Louis on July 15, 1897. He began his railroad career with the Terminal of St. Louis in 1914 as mechanical accountant, and in 1920 he joined the Wabash as assistant valuation engineer. He was transferred to Decatur, Ill., as assistant electrical engineer in 1923, remaining in that post until 1928, when he went with the M. P. as power plant superintendent at St. Louis. Mr. Verbarg was appointed air conditioning engineer in 1933, the position he held at the time of his recent appointment.

G. Blythe, signal supervisor on the Saskatchewan district of the Canadian National, has been appointed assistant signal engineer of the Western region, with headquarters at Winnipeg, Man.

SPECIAL

John V. Blalock has been appointed special representative in the public relations department of the Seaboard Air Line at Norfolk, Va., succeeding **Alfred G. Ivey,** who resigned to become associate editor of the Winston-Salem Sentinel. Mr. Blalock was formerly feature editor of the Durham (N.C.) Morning Herald.

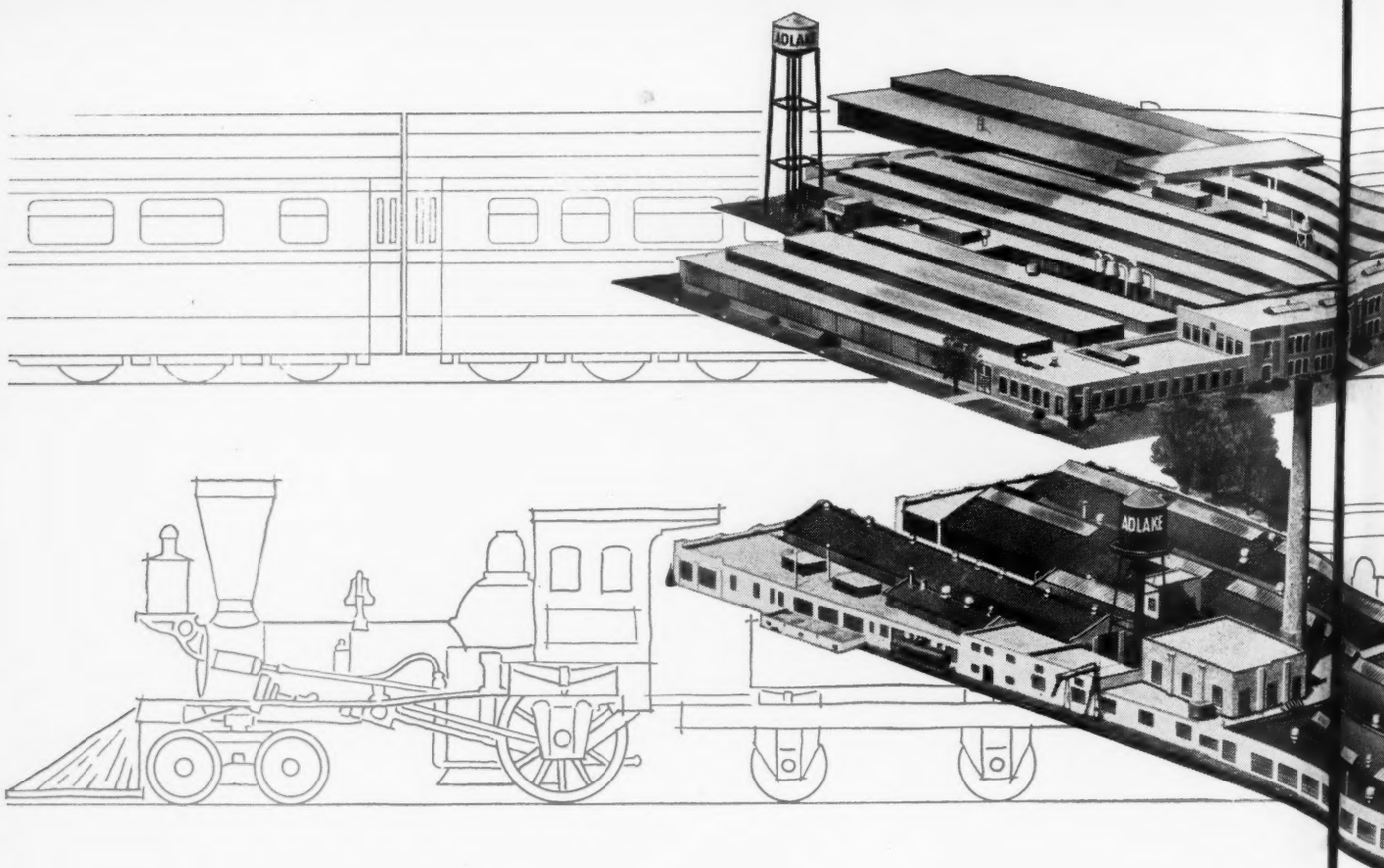
James Edwin Carlisle has been appointed assistant to director of personnel of the Seaboard Air Line at Norfolk, Va. Mr. Carlisle entered the service of the Seaboard as yard switchman at Hamlet N. C., on October 7, 1942, and has been in continuous service with that road since that time. He was born at Bostic, N. C., and attended Brevard (N. C.) College.

OBITUARY

J. H. Hewitt, retired assistant freight traffic manager of the Pere Marquette (now part of the Chesapeake & Ohio), at Chicago, died at San Martin, Cal., on July 12.

Ralph W. Beard, superintendent of the Ironton railroad, with headquarters at Hokendauqua, Pa., died on July 16 at Allentown (Pa.) hospital, at the age of 57.

News Department continued on second left-hand page



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PULLMAN, COACHES, diners and lounges—from the ornate red-plush-and-mahogany cars of yesteryear to the swift, luxuriously appointed streamliners of today—have constantly used ADLAKE equipment. And railroaders still rely, as they have these 91 years, on ADLAKE specialties for safer, more efficient operation.

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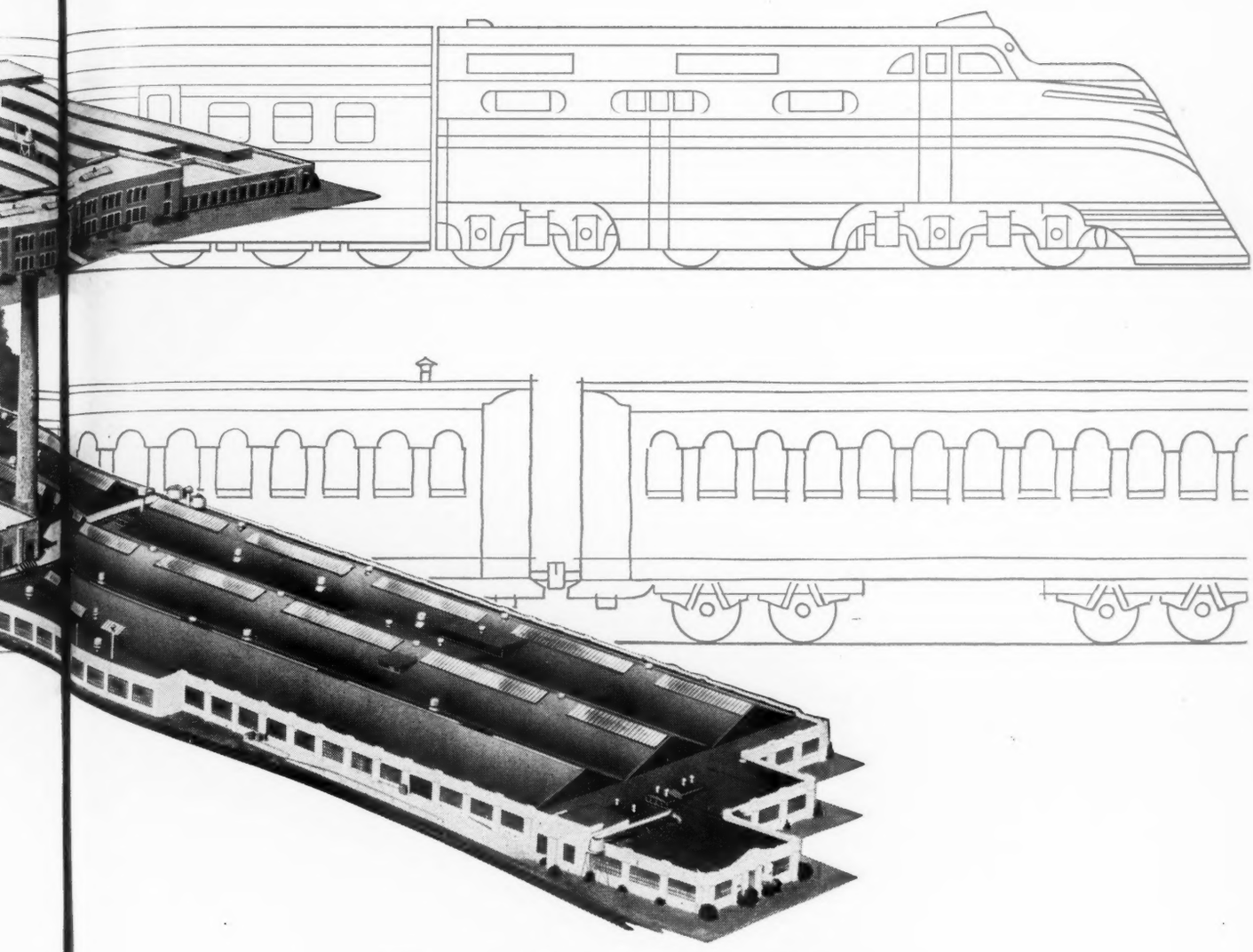
AS WE SALUTE America's railroads on the occasion of the Chicago Railroad Fair, we complement our good wishes with a reminder: The Adams & Westlake Co.'s modern plant facilities, and 91 years of superb service to the country's roads, are your guarantee of satisfaction with any piece of equipment that bears the name ADLAKE.



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• HARDWARE—ADLAKE has been turning out hardware of handsome, practical design since the early ornate "varnished" cars first began to roll up to the "Streamline" designs now being used.

• SWITCH LAMPS AND LANTERNS—ADLAKE signal lamps and lanterns have been leaders in the signaling field from the days of the early designs of oil burning to the 1948 designs of electric.

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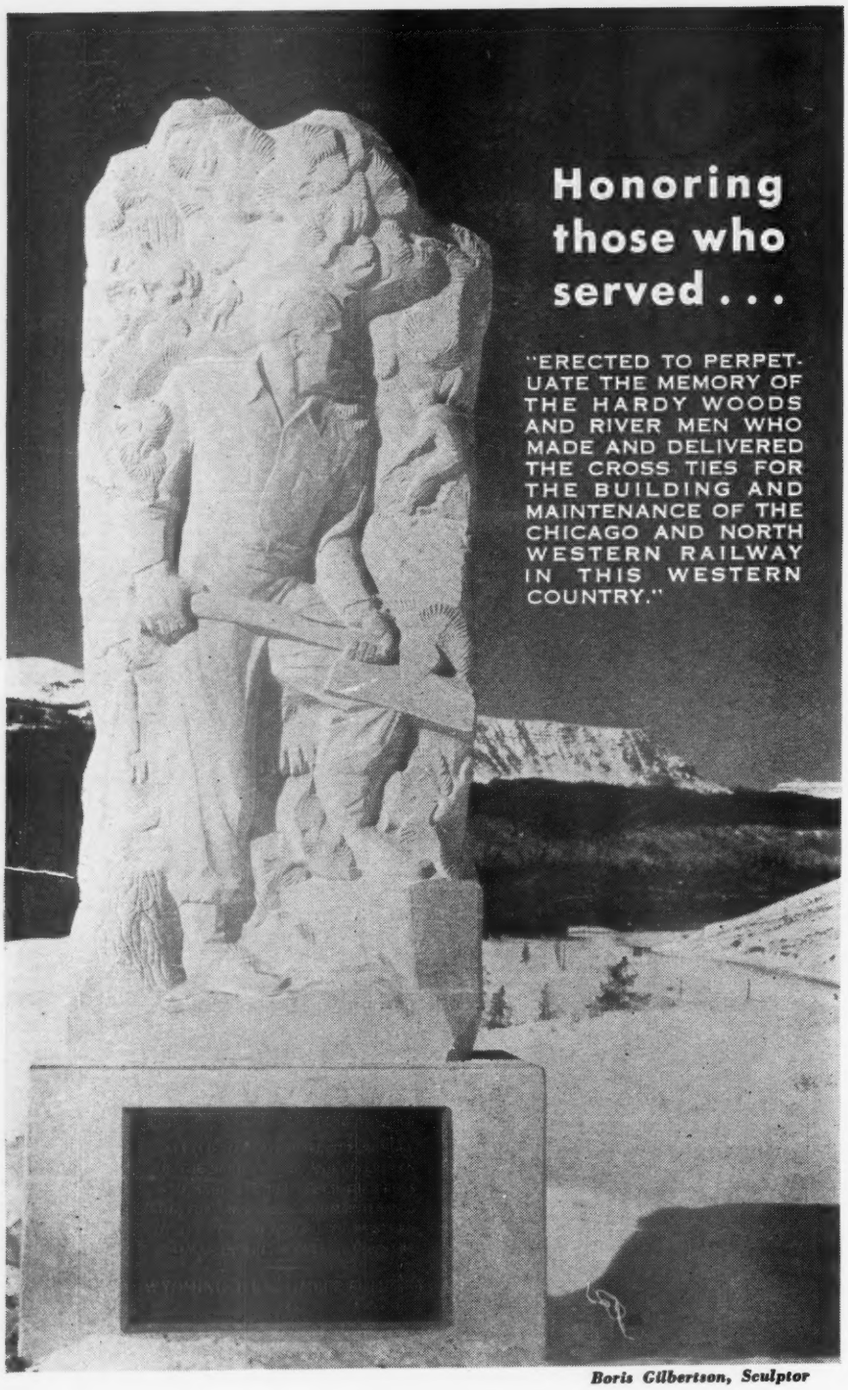

Honoring those who served . . .
"ERECTED TO PERPETUATE THE MEMORY OF THE HARDY WOODS AND RIVER MEN WHO MADE AND DELIVERED THE CROSS TIES FOR THE BUILDING AND MAINTENANCE OF THE CHICAGO AND NORTH WESTERN RAILWAY IN THIS WESTERN COUNTRY."

Boris Gilbertson, Sculptor

On August 14th the United States Forest Service will join the Wyoming Tie & Timber Company in ceremonies dedicating this monument in the heart of the Wyoming Rockies. It stands on a hilltop in the Wind River Valley, above the original camp site of one of the biggest cross tie operations in the history of railroading, and the starting point of the 100-mile tie drive down wild mountain streams, which produced for the Chicago & North Western Railroad in 33 years over ten million cross ties—until recently mostly hewn by hand.

Now the picturesque river drive is supplanted by modern road-building equipment and trucks, and saw mills do the work of the "tie hacks", but the skill of those vanished artists of the broadax, resolute pioneers in the Paul Bunyan tradition, is a memorable contribution to railroad history.

The Wyoming Tie & Timber Company continues to produce ties in the south, and maintains a modern wood-preserving plant at Metropolis, Illinois.

WYOMING TIE & TIMBER COMPANY

R. Van Metre, President

400 West Madison Street, Chicago 6, Illinois

Walter Firmin, Vice President, Metropolis, Illinois

General News

I.C.C. Finds Derailment

(*Continued from page* 106)

and 2,221 ft. eastward. The grade is 0.37 per cent ascending eastward.

Among the B.&O. maintenance-of-way rules set out in the report was one reading as follows: "Any work that interferes with the safe passage of trains at full speed is an obstruction and must not be attempted without full protection in both directions. If merely a reduction in speed is necessary, he [the track foreman] must have caution signals placed just beyond the obstruction on the engineman's side of the track."

At the time of the accident, the "Diplomat," a first-class passenger train, consisted of two Diesel-electric units, and 9 all-steel cars in the following order: 1 baggage car, 1 passenger-baggage car, 3 coaches, 1 dining car, and 3 sleeping cars. The sixth to the ninth cars were derailed, separations occuring between the fifth and sixth cars and between the seventh and eighth cars. None of the cars was equipped with tightlock couplers.

The sixth and seventh cars, remaining coupled, stopped on their right sides, south of the eastward main track and parallel to it, with the front end of the sixth car 671.5 ft. east of the point of derailment. The eighth and ninth cars, remaining coupled, stopped practically upright, with the east end of the eighth car 343 ft. east of the point of derailment and 24.6 ft. south of the eastward main track. All of the derailed cars were "badly damaged."

The locomotive and first five cars stopped, undamaged, with the front end of the engine about 1,800 ft. east of the point of derailment. About 600 ft. short of that stopping point they passed No. 509, a westbound first-class passenger train, moving on the westward main track at a speed of about 75 m.p.h. The leading Diesel-electric unit of No. 509 struck a rail which had become displaced as a result of the derailment of No. 4 and which was suspended over the westward main track. The rail punctured the Diesel's fuel tank, the fuel became ignited, and the locomotive was "badly damaged" by fire. However, No. 509 was not derailed, and no one on it was injured. The weather was clear at the time of the accident which occured at 11:21 a.m.

The commission's investigators found no defective condition of equipment which could have caused the derailment. The first mark on the track structure was found to be a flange mark on a tie 9 in. inside the south, or high rail at a point 329 ft. east of the point of maximum curvature. This mark continued eastward on the tops of the next 9 ties, and the track beyond "was destroyed a considerable distance." It was the commission's general conclusion from the foregoing and other evidence that the track was thrown out of normal alinement by the lateral thrust of the engine and cars against

the high rail as the train rounded the curve. "Before the derailment occurred," the report added, "the track was shifted outward to a point where the ties under the high rail were unsupported and where the track pivoted on the shoulder of the roadbed."

The maintenance work was that of raising and surfacing the track, replacing defective ties, and adding a sufficient number of ties to average 24 ties per rail length. Thus the ties remaining in the track were respaced and the ballast loosened. On June 7, three days prior to the day of the accident, the eastward track on the curve had been raised an average of about 3 in. On the day of the accident, a crew of 14 men was engaged in removing the defective ties, respacing and tamping the remaining ties, and partially filling the cribs with ballast taken from between the tracks and from the shoulder of the eastward main track. "Additional ballast was not provided," the report said. A second crew of 17 men was engaged in spiking, installing new ties, and partially filling the cribs with ballast. About 6 men were engaged, "among other duties," in driving rail-holding spikes.

"At the time of the accident, throughout a distance of 271 ft. west of the point of accident," the report continued, "there were 27 ties which were not spiked at either rail and 31 ties were spiked at only one rail. At five points adjacent ties were not spiked at either rail, at four additional points adjacent ties were not spiked at one rail, at 10 points alternate ties were not spiked at either rail, and at 13 other points alternate ties were not spiked at one rail. In addition, at least 33 ties were neither tamped or tie-plated. At no point throughout a distance of 271 ft. west of the point of derailment was there a firm bond existing between the ties and the ballast. This condition, coupled with the large number of ties which were not spiked or only partially spiked, rendered the track unsafe for train movements."

A. L. Hammell Elected Director Of Transportation Association

A. L. Hammell, vice-president of the Railway Express Agency at Chicago, has been elected a director of the Transportation Association of America to fill the vacancy created by the resignation of L. O. Head, president of the R.E.A.

Shippers Flay Labor Leaders Who Reject Fact-Finders' Decisions

Labor leaders who refuse to abide by decisions of impartial fact-finding boards but, instead, insist upon "following a course of destruction of American principles to satiate their own selfish interests" were censured by the Southeast Shippers Advisory Board at its 25th anniversary meeting in New Orleans, La., last month. The board at the same time commended railroad management for willingness to accept the decisions of fact-finders.

Colonel J. Monroe Johnson, director of the Office of Defense Transportation, warned the gathering against being "lulled into the belief that the future is safe." He also emphasized the need for additional railroad cars and a program for continual replacements if the nation's increasing population is to be properly supplied. Among other speakers were J. E. Payne, vice-president—traffic of the St. Louis-San Francisco; Donald D. Conn, vice-president of the Transportation Association of America; and R. E. Clark, manager, Closed Car section, Association of American Railroads. The board will next meet on September 16, at Biloxi, Miss.

May Accident Statistics

The Interstate Commerce Commission has made public its Bureau of Transport Economics and Statistics preliminary summary of steam railway accidents for May and for this year's first five months. The compilation, which is subject to revision, follows:

Item	Month of May		4 months ended with May	
	1948	1947	1948	1947
Number of train accidents*	888	1,339	5,157	7,164
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	130	121	515	450
Injured	112	115	415	399
Passengers on trains:				
(a) In train accidents*				
Killed	—	5	18	33
Injured	35	43	598	648
(b) In train-service accidents				
Killed	—	2	9	14
Injured	201	220	1,066	1,064
Travelers not on trains:				
Killed	2	2	4	4
Injured	77	69	456	400
Employes on duty:				
Killed	53	44	263	328
Injured	2,341	2,810	13,164	15,045
All other nontrespassers:**				
Killed	128	139	702	895
Injured	437	504	2,800	2,903
Total—All classes of persons:				
Killed	313	313	1,511	1,724
Injured	3,203	3,761	18,499	20,459

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former caused damage of more than $150 to railway property in 1947. Beginning January 1, 1948, this minimum was raised to more than $250. Only a minor part of the total accidents result in casualties to persons.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Persons:				
Killed	119	134	648	832
Injured	269	268	1,790	1,854

New York Ban on R.E.A. Truck Advertising Before Supreme Court

The Supreme Court has noted probable jurisdiction, thus indicating its disposition to review a New York Court of Appeals decision upholding the conviction of the Railway Express Agency and some of its truck drivers for violations of a New York City traffic regulation that has been construed against R.E.A. as prohibiting the leasing of space on express trucks for the display of posters carrying advertising other than that of the Express Agency itself. The case is docketed in the Supreme Court as No. 786, Railway Express Agency, et al. vs. the People of the State of New York.

The New York City traffic regulation at issue reads as follows: "No person shall operate, or cause to be operated, in or upon any street an advertising vehicle; provided that nothing herein contained shall prevent the putting of business notices upon such business delivery vehicles, so long as vehicles are engaged in the usual business or regular work of the owner and not used merely or mainly for advertising."

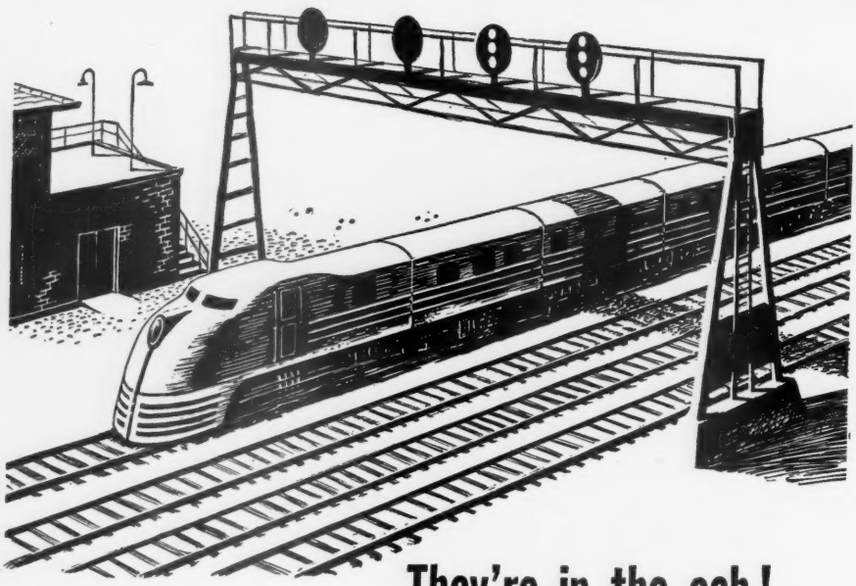
The regulation was promulgated by the New York City police commissioner on the theory that it would be a measure of relief from traffic congestion. In that connection the statement of the case filed with the Supreme Court by R.E.A. said it is "undisputed" that the express trucks "are never operated solely to exhibit the posters, i.e., driven empty about the streets to display advertising"; and that "there is nothing in the record to show that as a matter of experience street accidents attributable to the presence of the advertisements have occurred." The review of the case by the Supreme Court would come in that court's next term, which begins in October.

M. R. S. General Headquarters Reserve Unit Activated

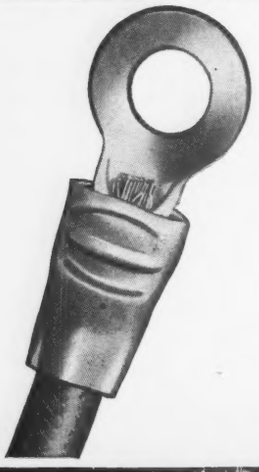
General Headquarters of the Transportation Military Railway Service was formally activated as a Class C Reserve unit at an informal dinner in Chicago on June 30. Major General Carl R. Gray, Jr., administrator of veterans affairs and former vice-president of the Chicago & North Western, was named commanding general of the headquarters. General Gray was director general of the Military Railway Service in the European theater of operation during World War II. Colonel Arthur E. Stoddard, general manager of the Union Pacific, Omaha, Neb., was named deputy commander, with the organization rank of brigadier general. It will be the duty of the General Headquarters to direct the activities of the First, Second and Fourth M.R.S. Headquarters, which have also been made a part of the organized reserve corps. The third M.R.S. is on active duty in Japan.

General Headquarters unit, as well as the Headquarters units subject to it, was staffed with officers selected by J. H. Aydelott, vice president of the Association of American Railroads, and approved by Major General F. A. Heileman, chief of transportation of the Army. The unit will be sponsored by the A.A.R.

In extemporaneous remarks, General Gray pointed out the close similarity between organization and discipline in the army and on the railroads. He urged extension of the principle of



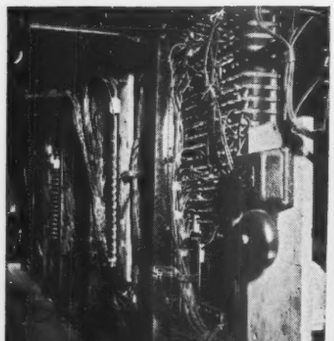
They're in the cab!
They're in the signals!
AMP Solderless Terminals and Connectors



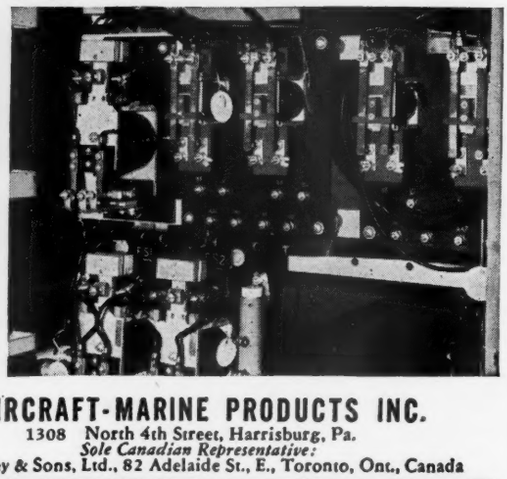
For original installations . . . for maintenance and repair work . . . on everything from C.T.C. circuits to Diesel control panels . . . patented AMP "Pre-Insulated" Solderless Terminals and Connectors offer important advantages in efficiency and economy that you'll want to know about.

You'll also want to know about the exclusive safety factor provided by AMP "Certi-Crimp" Installation Tools. These tools incorporate a simple, fool-proof mechanism that prevents all chance of faulty connections due to operator carelessness or fatigue. "The human element is eliminated."

Full details of what AMP Solderless Wiring is doing for other roads and what it can do for you are yours for the asking. No obligation, of course.



Typical Signal Installation



Typical Diesel Control Panel Installation

AIRCRAFT-MARINE PRODUCTS INC.
1308 North 4th Street, Harrisburg, Pa.
Sole Canadian Representative:
F. Manley & Sons, Ltd., 82 Adelaide St., E., Toronto, Ont., Canada

"PRECISION ENGINEERING AMP APPLIED TO THE END OF A WIRE

training technical soldiers and officers in industry-affiliated reserve groups, which method of building up the necessary personnel for a future emergency has the advantage of giving men training as they work at productive jobs—"costing the government not one cent." He declared that the success of this principle of training given soldier-railroaders in World War II warranted its extension to other types of industry.

W. T. Faricy, president of the A.A.R., pointed out that at no time during World War II was the force of America's armed might diminished by the failure of American railroaders at home or in the M.R.S. Addressing himself to the Army officers present, he said "whatever you gentlemen want from the A.A.R. is yours." Major General Heileman said that his experience in the Army Service Forces during World War II convinced him that "there is no job the American railroads cannot accomplish". During the war he simply gave the Transportation Corps the tonnage to be moved; now, as chief of transportation, he has has learned that there is more to the job than saying "move it."

R.F.&P.'s Hastings in China With E.C.A. Survey Group

Edgar M. Hastings, chief engineer of the Richmond, Fredericksburg & Potomac, is a member of a group appointed by Paul G. Hoffman, administrator of the Economic Cooperation Administration, to make a survey in China of reconstruction projects designed to assist that country toward economic recovery. The group, which is headed by Charles L. Stillman, vice-president and treasurer of Time, Inc., was scheduled to arrive in Shanghai in June.

The E.C.A. announcement said it "will inquire into steps which could be taken to restore essential transportation facilities, to develop sources of fuel, power, export industries, and coal mining." The report which it hopes to submit by August 1 "will make recommendations as to priority of construction of projects which would contribute most to the improvement of economic conditions in China."

Indian Mission Studying American Railroad Procedure

Three officials of the Indian government are visiting the United States for about 2½ months to investigate and study railroad conditions as related to similar problems of railroads in India, according to a recent issue of Foreign Commerce Weekly. The mission consists of Ranjit Singh, division superintendent, administrative, Delhi division; B. S. Sindru, mechanical engineer, regional board, central standards office; and R. Krishnaswami, mechanical power officer, East Indian Railway.

Each member will be responsible for certain phases of the study tour, as follows: Mr. Singh, general transportation and commercial operations of railroads;

Mr. Sindhu, shop equipment and railroad material manufacture, and procurement of rolling stock and shop equipment; Mr. Krishnaswami, locomotive power practice and maintenance of power equipment. American firms in position to assist these visitors in their mission are invited to communicate with them at the Indian Embassy, 2017 Massachusetts Avenue, N.W., Washington, D.C.

Railroad Men Attend Industrial, Economic Mobilization Course

Having been chosen by a civilian selection committee as men who are expected to hold key posts in their respective companies within the next 10 years, a number of Chicago railroad men were among the business executives who attended the Armed Forces Industrial and Economic Mobilization Course held in Chicago June 7 to 18, inclusive. Fred G. Gurley, president of the Atchison, Topeka & Santa Fe, and a member of the selection committee, assisted in choosing men to attend the course.

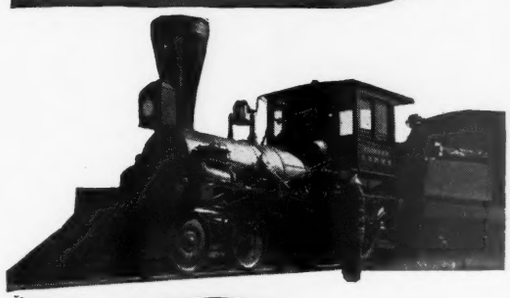
Railroaders chosen were: C. E. Crippen, superintendent of terminals of the Chicago, Milwaukee, St. Paul & Pacific; Alphonse Denis, industrial agent of the Illinois Central; C. J. Fitzpatrick, general superintendent of transportation, I. C.; Ernest E. Foulks, superintendent of transportation, Santa Fe; H. V. Gamper, assistant general purchasing agent, I. C.; W. S. Kerr, assistant to general manager of the Chicago, Burlington & Quincy; N. W. Kopp, assistant engineer, I. C.; K. H. Lyrla, auditor of disbursements, I. C.; W. W. Matzke, assistant to vice-president of the Chicago & North Western; H. C. Munson, assistant general manager, Milwaukee; and John S. Reed, transportation inspector, Santa Fe.

Army Engineers Favor Lake Erie-Ohio River Waterway Project

A report favoring construction of the proposed 104-mi. canal between Pittsburgh, Pa., (on the Ohio river) and Ashtabula, Ohio (on Lake Erie) has been rendered by the Army district and division engineers, according to the division engineer at Cincinnati, Ohio. As noted in *Railway Age* of February 15, 1947, page 376, the Army was directed to review reports on the project with "a view to determining the current estimate of the costs and benefits for the route," including "consideration with a view to determining for the same route the advisability of providing a project depth suitable for both lake and river traffic."

Coal, iron ore, stone and other bulk commodities would be the principal items of commerce on the proposed canal, according to the engineers, who also asserted that substantial savings in transportation over the cheapest present means of transportation would result. Appreciable flood control benefits in and beyond the valleys traversed by the canal would be an additional benefit

MATERIAL HANDLING News



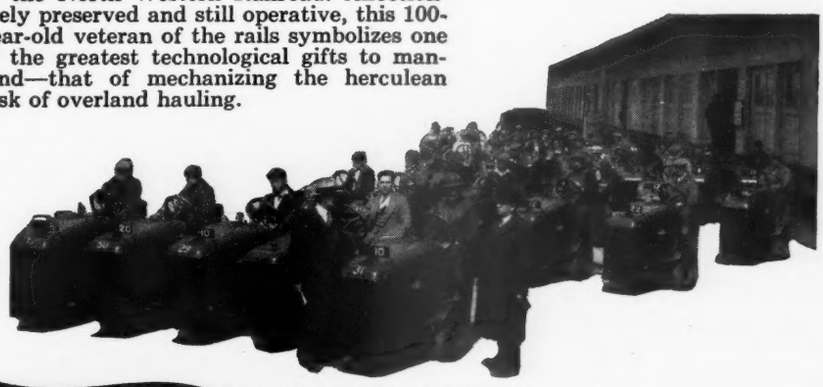
1848

The Pioneer, first "iron horse" of the North Western Railroad. Affectionately preserved and still operative, this 100-year-old veteran of the rails symbolizes one of the greatest technological gifts to mankind—that of mechanizing the herculean task of overland hauling.

100 YEARS OF HAULING HISTORY

This year marks the 100th Anniversary of the Chicago and North Western Railway Co. Together with the nation's other great transportation systems the North Western is now unfolding its life story at Chicago's lakefront Fair.

It is significant that many of these great systems, all recognized masters at long-range hauling, depend upon Clark fork trucks and towing tractors for the myriad short-range hauling jobs within their systems.



1927

In 1927 this fleet of 60 Clarkat towing tractors went on duty at the vast Proviso Freight Transfer Station of the North Western Railroad—saving time, cutting costs, increasing efficiency in freighthouse towing tasks.

Today, after 21 years of steady, punishing service, *many of the original fleet of 60 are still on the job,* still demonstrating the deep-seated quality and ruggedness of Clark construction.

1948

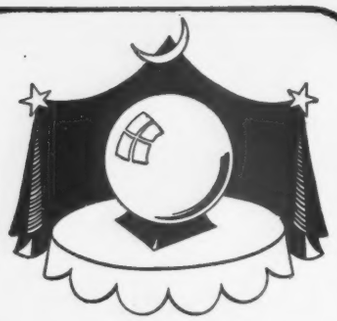
A replacement program is on its way—last year 15 new Clarkats were put into service at North Western's Proviso Freight Transfer Station.

Gas-powered Clarkat towing tractors are available with pneumatic or solid tires in two models—Clarkat-20 with drawbar pull of 2000 lbs., towing capacity 42 tons, and Clarkat-26 with drawbar pull of 2600 lbs., towing capacity 58 tons.

Your business can benefit, too, through Clark Materials Handling Methods and Machines. Let's talk it over

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIV., CLARK EQUIPMENT COMPANY BATTLE CREEK 24, MICH.
REPRESENTATIVES IN PRINCIPAL CITIES THROUGHOUT THE WORLD



Predictable Castings

Most of the "guess" has been taken out of foundry work; cast iron has become predictable. Improvements are due to better control at all stages of foundry practice, and to the use of alloy irons.

Predictable Molybdenum high strength cast iron is used for engine cylinders, cylinder blocks, liners, brake drums and other castings where strength and toughness, together with good wear resistance and heat resistance, are paramount.

Molybdenum is a popular alloying element in high duty irons because of its positive and predictable improvements; the improvements far outbalance the additional cost.

Authoritative engineering data on Molybdenum cast iron and its applications are furnished by Climax Molybdenum Company.

Climax Molybdenum Company
500 Fifth Avenue New York City

F.I.

resulting from the proposed project, it was stated. The total first cost of the project would amount to $439,000,000, of which $23,000,000 would be the cost to local interests.

Malleable Founders Society Elects

Collins L. Carter, president of the Albion Malleable Iron Company, was elected president of the Malleable Founders Society for the coming year at the society's recent annual meeting. Mr. Carter succeeds Wilson H. Moriarty, vice-president of the National Malleable & Steel Castings Co. James H. Smith, general manager of the Central Foundry Division, General Motors Corporation, was elected vice-president.

The society honored Robert R. Fauntleroy, president of the Moline Malleable Iron Company, with the Charles H. McCrea Medal for the "person rendering the most outstanding service to the malleable iron industry." Mr. Fauntleroy is a three-time past president of the society. The presentation address was made by Brinton Welser, vice-president of the Chain Belt Company.

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 127 reports (Form 1BS) representing 131 steam railways

(SWITCHING AND TERMINAL COMPANIES NOT INCLUDED)

	United States			
	For month of April		For the four months of	
	1948	1947	1948	1947
1. Net railway operating income	$53,105,074	$59,459,540	$195,750,651	$235,703,472
2. Other income	16,065,108	18,700,035	72,142,845	66,729,641
3. Total income	69,169,182	78,159,575	267,893,496	302,433,113
4. Miscellaneous deductions from income	3,663,872	3,397,361	14,866,758	12,957,838
5. Income available for fixed charges	65,505,310	74,762,214	253,026,738	289,475,275
6. Fixed charges:				
6–01. Rent for leased roads and equipment	10,853,542	10,112,254	42,047,108	41,837,040
6–02. Interest deductions[1]	24,348,617	26,015,020	97,147,654	104,540,652
6–03. Other deductions	142,712	139,024	567,903	549,517
6–04. Total fixed charges	35,344,871	36,266,298	139,762,665	146,927,209
7. Income after fixed charges	30,160,439	38,495,916	113,264,073	142,548,066
8. Other deductions	3,244,194	2,803,991	12,848,666	10,955,579
9. Net income	26,916,245	35,691,925	100,415,407	131,592,487
10. Depreciation (Way and structures and equipment)	30,773,529	29,305,578	121,536,069	116,382,848
11. Amortization of defense projects	1,366,669	1,339,356	5,790,349	5,411,317
12. Federal income taxes	20,205,989	21,600,082	91,543,591	96,597,434
13. Dividend appropriations:				
On common stock	2,956,177	3,052,627	42,344,427	37,509,121
On preferred stock	1,204,088	3,589,507	19,170,481	11,509,273
Ration of income to fixed charges (Item 5÷6—04)	1.85	2.06	1.81	1.97

Selected Expenditures and Asset Items	United States Balance at end of April 1948	1947
17. Expenditures (gross) for additions and betterments—Road	$81,456,253	$71,620,364
18. Expenditures (gross) for additions and betterments—Equipment	267,975,093	141,683,828
19. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	542,697,411	575,037,447
20. Other unadjusted debits	159,865,770	167,223,544
21. Cash	796,482,885	973,779,014
22. Temporary cash investments	923,269,391	986,062,014
23. Special deposits	137,416,841	162,949,004
24. Loans and bills receivable	12,632,546	246,241
25. Traffic and car-service balances—Dr.	50,079,667	47,087,746
26. Net balance receivable from agents and conductors	124,234,986	127,392,209
27. Miscellaneous accounts receivable	348,904,286	289,988,365
28. Materials and supplies	806,904,540	721,352,063
29. Interest and dividends receivable	18,250,329	16,660,854
30. Accrued accounts receivable	165,396,073	163,450,221
31. Other current assets	34,743,032	39,218,903
32. Total current assets (items 21 to 31)	3,418,314,576	3,528,186,634
40. Funded debt maturing within 6 months[2]	$153,964,871	$181,914,311
41. Loans and bills payable[3]	3,175,000	4,750,000
42. Traffic and car-service balances—Cr.	85,055,741	88,338,965
43. Audited accounts and wages payable	489,873,976	460,835,838
44. Miscellaneous accounts payable	232,862,764	218,072,084
45. Interst matured unpaid	46,736,538	61,267,541
46. Dividends matured unpaid	4,859,677	5,295,563
47. Unmatured interest accrued	60,322,397	55,956,136
48. Unmatured dividends declared	18,317,468	17,472,201
49. Accrued accounts payable	193,995,619	157,801,931
50. Taxes accrued	679,699,849	495,763,222
51. Other current liabilities	91,498,035	87,293,019
52. Total current liabilities (items 41 to 51)	1,906,397,064	1,652,846,500
53. Analysis of taxes accrued:		
53-01. U. S. Government taxes	554,827,176	379,819,846
53-02. Other than U. S. Government taxes	124,872,673	115,943,376
54. Other unadjusted credits	306,206,380	356,064,400

[1] Represents accruals, including the amount in default.
[2] Includes payments of principal of long-term debt (other than long-term debt in default) which becomes due within six months after close of month of report.
[3] Includes obligations which mature not more than one year after date of issue.
Complied by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

Current Publications

BOOKS

Freight Rate Application; Definitions, Interpretations, Constructions Explained and Clarified, by Glenn L. Shinn. 149 pages. Published by Simmons-Boardman Publishing Corporation, 30 Church St., New York 7. Price, $3.50.

This book serves as a practical and convenient reference work for interpreting freight tariffs, and as a comprehensive guide for those studying the subject. It is a companion volume to "new Departures in Freight Rate Making," by G. Lloyd Wilson. It presents in clear and concise fashion the rules and principles of tariff interpretation which govern the determination of the freight rates under section 6, paragraph 7, of the Interstate Commerce Act. Subjects covered include kinds of rates, rules of priority, conflicting rates, tariff errors, tariff routing, reasonable route doctrine, the Delmar principle, rate making rules, and general rules of tariff interpretation.

Ninth Annual Proceedings of the Locomotive Maintenance Officers' Association, September 15-17, 1947. Published by the Locomotive Maintenance Officers Association, C. M. Lipscomb Secretary, 1721 Parker st., North Little Rock, Ark.

The committee reports and addresses presented at the 1947 annual meeting of the L.M.O.A. are contained in this volume. The reports covered welding, modernization of steam locomotive repair shops, Diesel maintenance, air brake equipment, forging and heat treating, shop tools, safety and personnel training.

ARTICLES IN PERIODICALS

Pennsylvania Railroad General Office Library, by Elva M. Ferguson. Bulletin of the Special Libraries Council of Philadelphia and Vicinity, March, 1948, pp. 17-21. For copies address Elliot H. Morse, Editor, at Reference Department, University of Pennsylvania Library, Philadelphia 4, Pa.

The Pennsylvania Railroad general office library is located in the Broad Street Station Building in Philadelphia. It has been in operation for 11 years, and is used by practically all departments of the general office. Between 50 and 100 persons call by telephone or visit the library each week. While the library contains a vast amount of historical material, it also contains a good collection of modern economic material. Outstanding collections of the library are its files of railroad annual reports (both Pennsylvania and other companies), old railroad periodicals, railroad guides, and complete sets of Poor's and Moody's manuals.

Railroad advertising. Railway Progress, July, 1948, pp. 7-17. Published by the Federation for Railway Progress, P.O. Box 6539, Terminal Tower, Cleveland 1, Ohio.

In a series of three articles, three authors probe the subject of how well the railroads uses one of the most effective tools of modern industrial society. Walter Weir, advertising agency man, asserts that the railroads have made only skimpy use of their advertising opportunities, with the result that "advertising has brought up the stern end of railroading." Lawrence M. Hughes, advertising reporter, has cast an experienced eye over the railroad advertising that now appears in publications, and presents his reactions to it as a whole and to numerous individual advertisements. Albert K. Dawson, an editor interested in great sales of railroad travel, presents the economic argument that advertising may be the answer to the railroads "no-inventory" problem in passenger operations.

G. M. Diesel. Fortune, July, 1948, pp. 76-81 et seq. Published by Time Inc., 540 N. Michigan ave., Chicago. Single copies, $1.

General Motors' entry into the Diesel engine field, and its progress in building up the business is discussed in this article. A large part of it is devoted to the purchase of the Winton Engine Company and the Electro-Motive Company, and the growth therefrom of General Motors' large and increasing locomotive business.

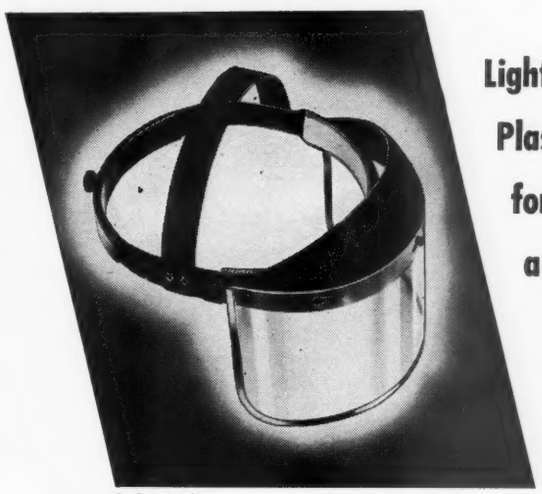
Diesel Streamline Progress in the U.S.A., 1947, by Cecil J. Allen. Diesel Railway Traction, June, 1948, pp. 108-111. Published by the Railway Gazette, 33 Tothill st., Westminster, S.W.1, London, England. Single copies, two shillings.

"Diesel Railway Traction" presents herewith its annual survey of streamline train progress in the United States. Table I lists streamline trains, by roads, and contains such data as name of train, type of power used, route, cars per train, length of route, average journey time, average journey speed, and daily mileage; Table II gives the daily mileage made by each type off power—Diesel steam and electric; Table III gives summit levels attained by the Diesel trains; Tables IV, the Diesel and steam runs scheduled daily at 75 m.p.h. and over from start to stop; and Table V, the aggregate mileage of runs scheduled daily at start-to-stop speeds of 70 m.p.h. and over.

PAMPHLET

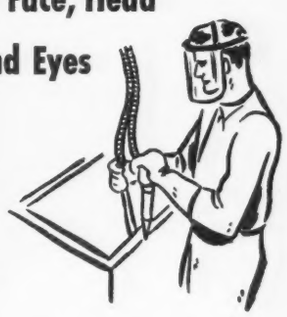
Southwest—The New Industrial Giant. 16 pages. Published by the Industrial Development Department, Missouri-Kansas-Texas, Railway Exchange Building, St. Louis 1, Mo. Free.

In keeping with the M.-K.-T. management's policy to promote the territory it serves, the railroad has issued this brochure, the second of its kind which it has released in recent years. It is designed to give industrial and agricultural leaders planning new projects or expansions a complete preliminary survey of the Southwest. Liberally illustrated with photographs from the territory, the brochure covers the land, climate, people, manufacturing, agriculture, livestock, transportation, power, taxes, finance and banking.



Style VI-64

Lightweight, Comfortable Plastic Protection for Face, Head and Eyes



If you want the fellows doing light grinding, wood working, spot welding to wear eye protection, give them WILLSON Protecto-Shields*. The large, one-piece visor—4", 6" or 8" long—provides both front and side protection. The adjustable, padded headband provides a snug comfortable fit. Workers wear them for long periods without fatigue. There's plenty of room for prescription glasses—and the visor swings up off the face when not in use.

VI Headgear small browguard

V3 Headgear large browguard

For complete information on these products and their application, as well as many more eye and respiratory protective devices, get in touch with your nearest WILLSON distributor or write us direct.

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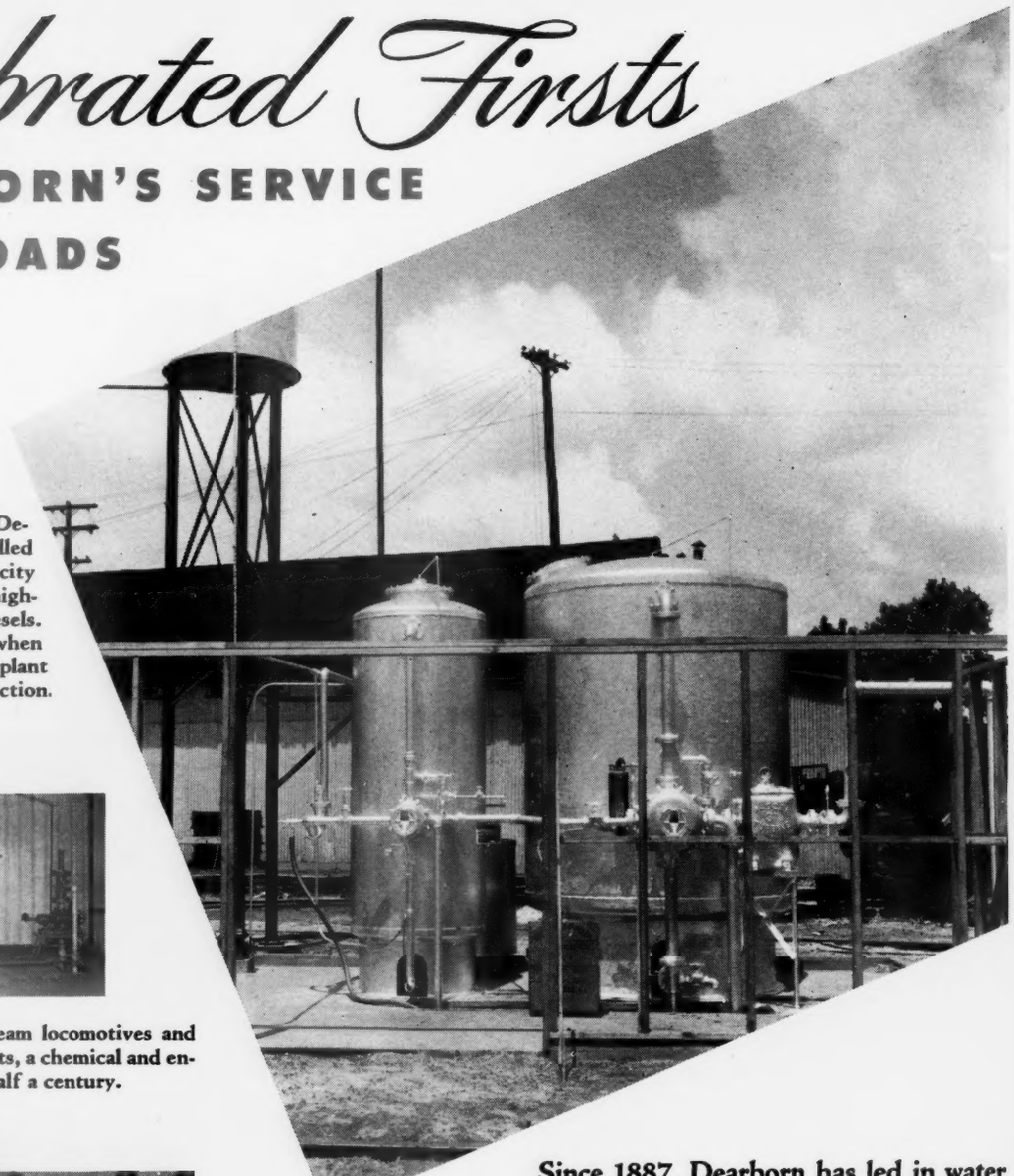
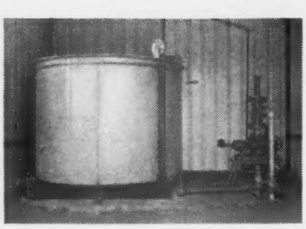
Celebrated Firsts

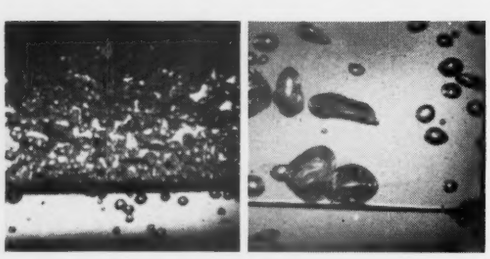
IN DEARBORN'S SERVICE TO RAILROADS



Railroad's largest De-Ionizing unit, installed in the south. Capacity 60,000 gallons of high-purity water for Diesels. Photograph taken when housing around the plant was under construction.



Boiler water treatment for steam locomotives and compact wayside treating plants, a chemical and engineering service for almost half a century.



An outstanding contribution—Amine anti-foam research and development effecting reduced blow-down, insuring high-quality steam.

NO-OX-IDs, the first rust preventives, and the new Joint Bar Filler, companion products to protect rail joints, sealing in rust preventives and lubricant.

Since 1887, Dearborn has led in water treatment research and development, benefiting railroads by the prevention of scale and corrosion, reducing shopping time, increasing locomotive availability, and now cooling water and steam generator treatment and efficient, economical units to supply mineral-free water to Diesels. Alert to new needs, Dearborn's research and engineering staffs are planning now for new celebrated firsts of the future.

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